# Smart Customization: Making Evidence-Based Environmental Decisions

by

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Submitted to the Program in Media Arts and Sciences,
School of Architecture and Planning,
in Partial Fulfillment of the Requirements for the Degree of

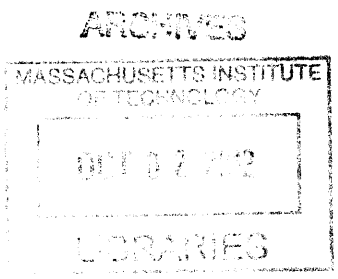
Doctor of Philosophy in Media Arts and Sciences

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

September 2012



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ABSTRACT

This thesis examines the environmental benefits created by the manufacture, distribution, and consumer use of products that are mass customized (MC) or produced "on-demand" and tailored to individual end-user preferences. Traditional mass production (MP) models take advantage of economies of scale by efficiently producing multiple copies of the same standard product. However, this also creates waste throughout the product life cycle. The waste of stocks, transportation, overproduction, and non-actuality (markdowns and disposal due to inability to move products in time) pose a problem for manufacturers to achieve financial and environmental sustainability. Studies have found that the textile industry can lose approximately one-third of total revenue ($300B) a year due to waste alone.

The men's dress shirt industry serves as a comparative case study in this research, demonstrating the trade-offs between MC and MP methods and enabling evidence-based environmental decisions by manufacturers and consumers. In addition to an examination of the carbon footprint created by the manufacture and distribution of MC vs. MP men's dress shirts, this study includes experiments to understand, in detail, the environmental consequences of shirt acquisition and consumer use. Experiment participants are provided coupons to "purchase" two new dress shirts (one MC, one MP), which are embedded with washable and dry-clean proof RFID tags. A RFID tracking system deployed at the entrance and exit of the participants' offices collects data over a period of 60 working days to determine overall utilization patterns. Armed with this "post-transaction" information gathered by this tracking methodology and ethnographic findings (information that manufacturers often lack), this thesis provides an evidence-based guide that takes into account the environmental benefits of both MC and MP models to enable manufacturers to produce more sustainable products and consumers to practice "Responsible Consumerism."

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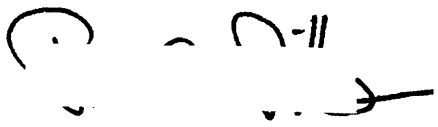

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In memory of Bill Mitchell.

## Acknowledgements

This thesis is dedicated to Professor William J. Mitchell, my long-time advisor, mentor, and friend. I sought his guidance soon after I arrived at MIT's Department of Architecture in 1997 and worked closely with him until his passing in 2010. During our collaboration, we envisaged a new urban landscape that we called 'Smart Cities' and attempted to reinvent the automobile by engaging the Media Lab and the greater MIT community in envisioning, designing, and prototyping new possibilities. Bill's teachings have created institutional momentum to carry his vision and research into the 21st century and beyond. Working with Bill greatly shaped the person I am today, not just in an academic sense, but also in terms of my life values and principles. For this, I am forever grateful.

I would also like to thank Ms. Jane Wolfson, Bill's wife, for all her support throughout my time working with Bill and during the transition from Smart Cities to my new research group, Changing Places, under Mr. Kent Larson. I can only hope to reciprocate to you and your family.

I am very grateful to Kent Larson for not only adopting me and the other members of Smart Cities into his research group, but also for his masterful management of the transition of the CityCar concept into industrialization. There is no way we could have accomplished this without his leadership. Kent was also an insightful advisor who helped shaped this thesis. I look forward to working with him on the new City Science initiative at the Media Lab and on other ventures.

I am grateful to Professor Alex (Sandy) Pentland and Professor Frank T. Piller for their involvement on my thesis committee. Both provided outstanding high-level and rigorous feedback on the research. Frank's leadership in the Mass Customization community has greatly influenced my interest in the topic and I very much value our relationship.

I am thankful for all the support of both of the research groups that I have been involved with since I came to the Media Lab. The nature of my research in tackling complex urban problems required a high level of collaboration and many of the students gladly supported this approach. I am particularly appreciative to those students from Smart Cities with whom I worked closely on the CityCar. They included: William Lark, Jr., Philip Liang, Axel Kilian, Patrick Künzler, Mitchell Joachim, Franco Vairani, Dimitris Papanikolaou, Peter Schmitt, Michael Chia-Liang Lin, Nicholas Pennycooke, Praveen Subramani, Chih-Chao Chuang, and Raul-David "Retro" Poblano.

Special thanks must be given to Daniel Smithwick and Harrison Hall for their collaborations with me on the Smart Customization project. Dan and I started our examination of the environmental benefits of mass customized products in 2008 and have been collaborating since them. I believe that we make a great team and look forward to working with Dan in the future. I am also thankful to my UROPs, Patrick Gichuiri and Helen Driftmier, for their efforts throughout the study.

I would also like to thank all the hard working administrative and support staff at the Media Lab for their extensive help during my time there. Of special mention is Ms. Cynthia Jean Wilkes for her unremitting everyday support. I am also thankful for the assistance from Ms. Felice Gardner, Ms. Paula Anzer, Mr. Kevin Davis, Mr. Cornelle N. King, Mr. Will Glesnes, Mr. Jon Ferguson, Dr. Henry Holtzman, and Ms. Paula Aguilera.

I am also indebted to Ms. Betty Lou McClanahan for inviting me to the Media Lab in the first place. In 1999, when I was looking for my first master's thesis topic, I went to her seeking advice on how to compare the industrial practices of the automotive industry to that of the architectural industry. From that point forward we have been friends, and it was her ability to bring people

together that led to the CityCar project. We had many doors slammed in our faces as we approached companies with the idea of a new vision for the automobile. However, it was her persistence that helped us to prevail. I am also thankful to her for bringing me close to Professor Marvin Minsky and Dr. Gloria Rudisch. They are a wonderful couple and epitomize what I value in the generations before me.

I wish to thank the participants of the shirt study at Fidelity and the MIT Technology Review for their generous time and for submitting to the constraints of the study. Special thanks should be given to Ms. Kathleen Kennedy and Ms. Paige Journey at Technology Review and Ms. Amanda Chiu at Fidelity for rallying the participants and organizing their respective offices on our behalf. I also wish to thank Mr. Jason Pontin, editor-in-chief and publisher of Technology Review, for his insistence that custom dress shirts are both high- and low-tech and pertinent technologically.

I am eternally grateful to my parents, my sister, and my brother for my upbringing. They gave me the foundation to seek what I am truly passionate about and they are always there, no matter the situation.

The last and most important person to thank is my wife, Linda Ow, for her love and support ever since I met her. It can be difficult living with me given my ambitions, but that never stops Linda from loving me. It's my turn now to support her dreams and life goals.

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# Chapter 1

# Introduction

## 1.1 What is Mass Customization?

The concept of Mass Customization (MC) as defined by Tseng and Jiao is the ability to "produce goods and services to meet individual customer needs with near mass production efficiency" (Tseng et al. 2001). MC achieves many of the benefits of craft production – the ability to create a product or service that is unique or has many variations – while employing the technological and strategic techniques of Mass Production (MP) such as machine automation, use of assembly lines, and economy of scale production. B. Joseph Pine II describes the best method for achieving MC as follows:

> "In Mass Production, low costs are achieved primarily through economies of scale—lower unit costs of a single product or service through greater output and faster throughput of the production process. In Mass Customization, low costs are achieved primarily through economies of scope—the application of a single process to produce a greater variety of products or services more cheaply and more quickly. Companies often achieve both, such as economies of scale on standard components that can be combined in a myriad of ways to create end-product variety with economies of scope." (Pine, *Mass Customization: The New Frontier in Business Competition*, 1993, p. 48).

MC strategies have been adopted by many industries ranging from consumer electronics, automobile manufacturing, apparel, footwear, food products, the building industry, and even

cosmetics with varying degrees of success. The consumer electronics industry is one of the industry leaders in utilizing MC to produce unique and customizable products for the end-user. Led by early mass customizers like Dell, the consumer electronics industry has used Pine's concept of utilizing modular components (such as hard disks, RAM, and accessories like printers and monitors) that can be configured into end products of nearly endless variety. A key development that enabled consumer electronic manufacturers to customize is a flexible and modular product architecture that allows components to be easily packaged and integrated into an underlying structure. B. Joseph Pine II proposes six degrees of modularity for product architectures including: component sharing, component swapping, cut-to-fit modularity, mix-modularity, bus modularity, and sectional modularity (Abernathy and Utterback 1978). When utilizing this type of modular product architecture, customizers are able to fully benefit from the economies of scale and scope proposed by Pine.

The automobile industry has also adopted MC strategies to increase product variety and to tailor the end product to consumer needs. The degree of adoption depends on the specific manufacturer. For example, companies like Mercedes Benz and BMW provide tremendous variety by allowing customers to select the body style, powertrain, paint trim combinations, and options within a product line. In fact, Holweg and Pil (2004) reported that there are 3,933,000,000,000 variants of the E-class Mercedes Benz, i.e., outpacing the total number of humans on earth and vastly exceeding the total number of customers for that year in the UK (12,930). This excessive variety does create trade-offs in the decision-making process and has been well studied by researchers like Swartz (Paradox of Choice) and Iyengar (When Choice is Demotivating). The truck and bus maker Scania AB has fully adopted MC by utilizing product modules for the chassis, body, powertrain, interior, and other components to develop a completely different and unique solution for each customer (www.scania.com).

The footwear industry has also adopted MC as a marketing tool for their core businesses. Customizers like Nike (NikeID), Adidas (MiAdidas), Puma (Mongolian Shoe BBQ), and Timberland have created an array of custom products and retail environments focusing on different aspects of the customizing experience. For example, NikeID initially created athletic shoes where cosmetic customization was the main feature, whereas MiAdidas focused on better fit and function with foot scanning at their retail locations. Puma focused on creating a store experience where customers could select materials with the aid of a style expert within the retail environment. The finished product would arrive 4-6 weeks later at the store.

### 1.2 Customer Benefits of MC

The ability of a product or service to provide better fit, function, and aesthetics are the core benefits as described by Frank T. Piller (2004) for the consumer. Customization provides an alternative to the "sacrificing" model that MP provides (Simon 1968). According to Pine (2000), MC reduces the "sacrifice" and compromise that transforms the customer experience from a commodity product to a premium product. The value proposition for MC in these core areas is fairly obvious:

Fit – Consumers with non-standard ergonomic requirements such as foot width, asymmetric sizing (i.e., left foot different than right foot), and extreme sizing (extra tall, short, wide, etc.) are able to find perfect or near perfect sizing. Proper fit helps to ensure ergonomic comfort, while improper fit is one of the leading causes of returns and low usage of the product. According to market research, fit may provide the greatest value for the customer over all other properties (Piller 2004)

Function – Consumers can specify the exact functional requirements of the product for their

individual needs. Functionality includes speed, precision, power, cushioning, output devices, interfaces, connectivity, upgradeability or similar technical attributes of a product offering (Piller 2004).

Aesthetics – Consumers can customize products to a nearly endless variety of colors, patterns, and textures to match their aesthetic requirements. (Piller 2004).

These benefits are all well studied and advocates of MC cite these as fundamental to a successful MC business. However, a number of additional benefits have been also discovered. They include increased perceived customer value, willingness-to-pay premiums, hedonic effect, and greater customer engagement. The breakdown below describes each of these benefits:

Perceived Value – Merle, Chandon, Alizon (2010) conducted a study to examine the perceived value to the customer attributed to MC products. In addition to the uniqueness value acquired from the individualization process as exhibited by fit, function and aesthetics, they identified additional benefits that include: 1) self-expressiveness value derived from the opportunity to posses a product that is a reflection of personality, 2) Hedonic value acquired from the experience's capacity to meet needs related to enjoyment, fun, or pleasure, and 3) creative achievement value acquired from the feeling of accomplishment related to the creative task of co-designing.

Customer Choice – MC offers choice advantages over standard MP offerings. Choices are not limitless and are bounded by options that are producible within a manufacturer's solution space, yet the magnitude of choice and the end-product variety essentially create a choice platform (typically through a web configurator) for the customer (Piller 2004). Barry Swartz's book *The Paradox of Choice,* suggests that choice is not a benefit because overwhelming variety stifles decision-making by the consumer (Swartz 2004). However, the improvements in configurators for MC have begun to mitigate the burden of choice when there are too many. Sheena Iyengar's famous jam study points to the ideal number of choices that is neither too small or too large, yet does not eliminate the need for choice (Iyengar 2000).

Core to each benefit listed above is the ability of consumers to make decisions. Often decisions are superficial as in the cosmetic customization of products. For example, black is nearly always selected as the color of choice, even if customers can select from a wide range of colors (Mulligan, 2011). However, decisions on fit and function as well as the decision making process itself (perceived benefit) are a fundamental element of the MC concept. This thesis will explore, in later chapters, the added dimension of enabling customers to make evidence-based decisions from data gathered from this study.

### 1.3 The Manufacturing Advantages of MC

Many of the advantages for MC manufacturers are a result of production based on direct market demand. Customers customize a product either through an online configurator or in-person with a sales agent, and then the products are produced. This "pull" based model dramatically reduces inventory and distribution costs typically associated with MP. A study on Nissan's "Build-to-Order" website estimates savings to the OEM of over $3,600 per vehicle if a customer designs a vehicle to be built and delivered as opposed to the current forecasting model that requires a vast network of dealerships, distribution, and the supply chain employed by many OEMs (Sanders 2005). Much of this cost is due to over-production of the end product and the need to stock inventory for returns as well as redistribution of product to match customers. Often car buyers will find a vehicle close to what they want, but not exactly what they want, thus selective customers will incur additional costs for shipping vehicles from dealerships (in the form of car trades).

In 2005, Sanders Consulting studied the effects of excess waste in the textile industry and discovered that over $300B of total revenue (about one third of $900B) is lost each year due to waste in overproduction, waiting, transportation, processing, waste of stocks, motion, and production of defective products (Sanders 2005). The two largest waste areas are waste of stocks and waste of overproduction. Each of these is directly attributable to the "push" model of MP. The largest waste (of stocks) consists mostly of non-actuality (i.e., markdowns and disposal due to the inability to move product in time). Figure 1-1 below, from Sanders, graphically describes this challenge facing MP manufacturers:

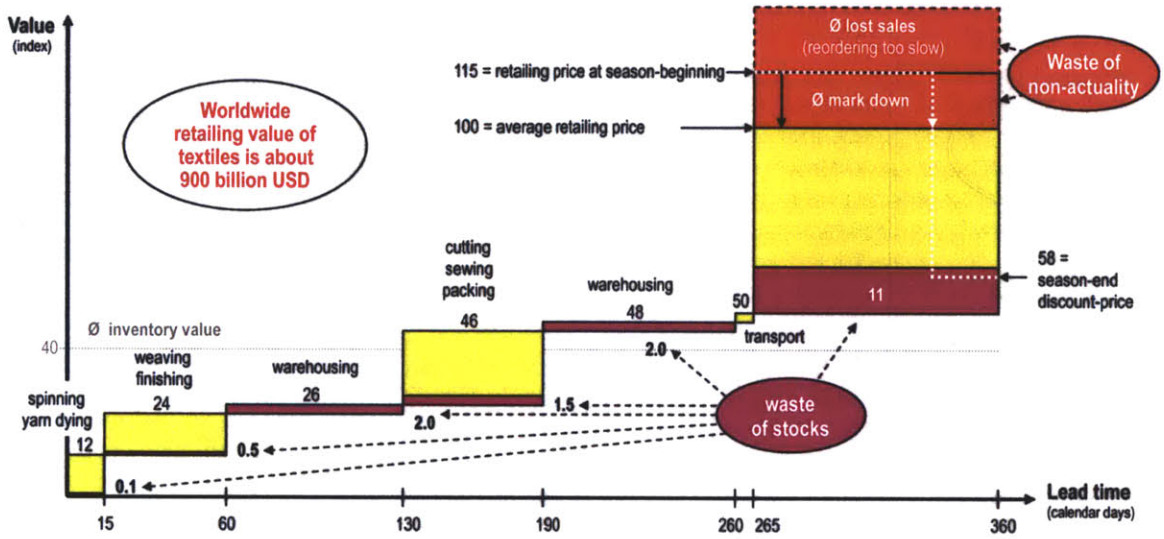



***Figure 1-1.*** Annual textile waste chart (Source: Sanders Consulting 2005).

In addition to reducing inventory, some manufacturers have utilized MC strategies like postponement to improve customer service and to reduce obsolescence of products (Shah 2009). Edward Feitzinger and Hau L. Lee's research on the "Power of Postponement" serves as a case study in postponing the task of differentiating a product for a specific customer until the last possible point in the supply chain network (1997). Instead of designing a power supply that would work across many continents which would require decisions to be made earlier in the process and reduce costs by only 5%, HP decided to postpone customization through the design of an external power supply that would allow them to shift differentiation from the factory to the distribution of the countries in which the products were sold. This reduced the total manufacturing, shipping, and inventory costs by 25%. The process of engaging in MC allowed HP to rethink not only the problem of inventory, but also the overall efficiency of their supply chain.

Another benefit to MC manufacturers is the data collected through the customer engagement process and the analysis of that data to improve inventory management, supply chains, market forecasting, and to develop more precise customer profiles. Coca Cola's Freestyle machine (See Figure 1-2) can provide over 100 different flavors of carbonated and non-carbonated drinks. However, the use of RFID allows for the detection of supply not only for replenishment, but also for key indicators in the customer decision-making process, including flavor selection and sequence of choices, the time needed to make major and minor decisions, and the overall utilization of the machine. These valuable bytes of information can be then used to improve not only the design of the interface itself but also to help determine new trends in tastes that emerge from customer demand rather than from traditional user studies.


***Figure 1-2.*** Coca Cola Freestyle machine (Source: Coca Cola Company, 2012)

The final benefit for MC manufacturers is the willingness-to-pay premium that custom products often command. In a study of custom vs. standard watches, Franke and Piller (2004) concludes that a willingness-to-pay premium of +126 % can be achieved for user-designed custom watches vs. professionally designed standard watches for 85-87% of the users tested.

### 1.4 Comparing MC and MP: Why is this Important?

Even with the advantages of MC and the adoption of its strategies by many industries, MC still remains as a niche production paradigm and is often only an extension of marketing efforts by corporations. Frank Piller (2008) writes, "Despite significant progress in individual cases, mass customization continues to be in the stage of a pilot or a marketing idea." For example, the current volume of custom M&Ms vs. standard M&Ms was just a fraction of total sales of M&M. NikeID sales pale in comparison to the total volume of Nike's standard offerings. Build-to-order (BTO) automobiles sold in the US by OEMs were less than 6% of total US volumes in 2000, however, BTO has gain much more acceptance in Europe at 48% and Japan at 60% of their respective markets (Holweg 2008). In some industries, like building and construction, it is almost impossible to determine volumes because definitions vary on exactly what *is* a mass customized building product. In fact, in the housing industry, architects design less than 1% of all homes (which would qualify as craft customization), whereas modular standard homes (which would qualify as MP) are even less (Larson, 2012). Some new homebuilders like Flatpak, Blu Homes, and Lindel Homes offer customizable modular homes, which maybe considered MC homes, yet represent just a fraction of total home sales.

Despite these sales records compared to MP, the momentum towards MC is undeniable in almost all industries. Of course, each industry has to overcome legacy business models and capital investments in order to successfully adopt or transition to MC practices. Capital-intensive industries like the automobile or shipbuilding industries have begun this transition while less capital-intensive industries have made the transition quickly and easily. The manufacturer and

customer benefits described earlier are indeed valuable to improving the reduction of waste, increasing customer satisfaction, and maximizing profit for the manufacturer, however, the energy and environmental benefits have yet to be fully understood. Reducing waste most certainly correlates to lower recycling costs and reduced energy costs for manufacture and distribution, therefore directly impacting carbon emissions. Yet this is only one component. The perceived benefit of a custom product can also affect the utility of a product in terms of lifecycle use of the product. This thesis explores the explicit and implicit environmental and energy benefits of utilizing MC.

### 1.5 What are the Energy and Environmental Benefits?

Based on the Sanders Consulting report, "Why Mass Customization is the Ultimate Lean Manufacturing System" which studied the waste created by the textile industry from 1996-2005, Daniel Smithwick and I conducted research on the energy and environment benefits through a case study in men's dress shirts. This case study allowed us to explore the environmental trade-offs between each production model through desk research and interviews with both MC and MP producers. Our 2009 paper entitled "Environmental Impacts of Utilizing Mass Customization: Energy and Material Use of Mass Customization vs. Mass Production" presented at the Mass Customization and Personalization Conference (MCPC 2009) in Helsinki, Finland, is an ethnographic study, through the lens of the consumer, that reveals key insights in the manufacturing, distribution, retail, and use of men's dress shirts that would shape this dissertation.

We utilized ethnographic techniques to deconstruct the retail experience for a MC and MP shirt in order to frame a set of comparisons (through interviews) for the manufacturing and distribution stages of the product lifecycle. The following sets of diagrams describe the process of acquiring a MC and MP shirts. Figure 1-3, below, describes the process of mass customizing a men's dress shirt through an online service. The process is straightforward and uses a web interface without the need for the additional software of an MC configurator. The user designs his shirt by going through a number of key steps: overall shirt style, selection of fabrics, style selection of components like cuffs or pockets, and then the use of online measurement tools. Once an order is placed, then the product is shipped directly to the user in several weeks via airfreight.

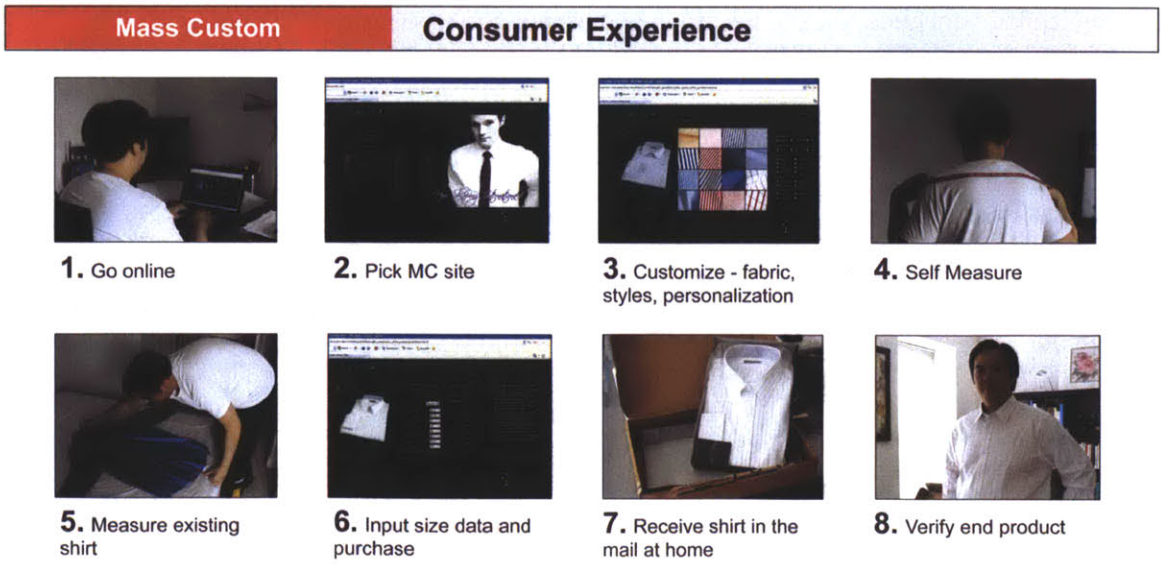



***Figure 1-3.*** MC shirt acquisition process.

In contrast, the MP shirt follows traditional retailing and requires a trip to a physical store. The MP offline model requires a trip to a retail location(s), selection and trial of different shirts, purchase, and the return back home. Figure 1-4 below illustrates the standard MP process studied in 2009:

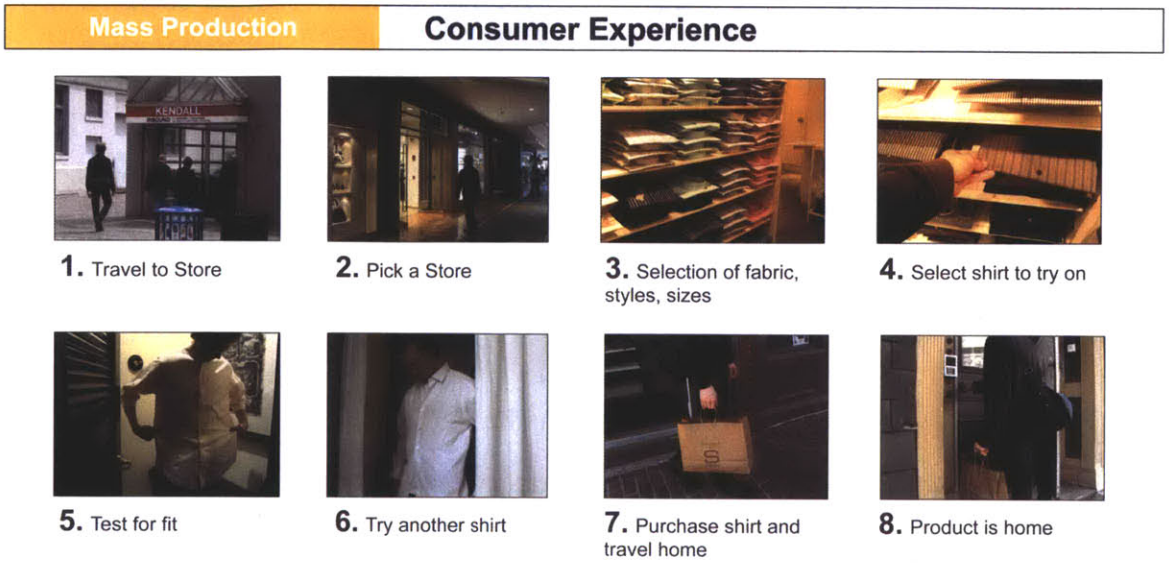



***Figure 1-4.*** MP shirt acquisition process.

The emergence of online MP retailing is an alternative model not studied in the 2009 paper, but it is considered in the experiments covered in this dissertation. Comparing these two processes allowed for the direct comparison of the production, distribution, retail experience, and post-retail use of the product through interviews conducted with both MP and MC manufacturers. The key insights are described below in Table 1-1:

| Mass Customization (MC) | Mass Production (MP) |
|---|---|
| **Inventory** | |
| Lower building energy requirements due to smaller total volume and quick reaction to demand. | Steady flow production with higher total volume, larger fabric rolls, pre-determined variety. |
| **Sewing and Cutting** | |
| Lower fabric utilization: 2-12%, 3X cutting & sewing time, additional underlay material. | Faster cutting time, higher fabric utilization, lower quality/less precise cut, and approx. equal shirt per operator output. |
| **Packaging** | |
| Individual packaging of each product | Utilizes less inner and outer packing material |
| **Distribution** | |
| Shipping of a single product to single location, partially full trucks, necessity for expedited shipping and airfreight, long-range shipping is common. | Added infrastructure for hubs and retail greatly increases embodied energy, non-expedited, time-wasted on retail shelves. Multiple trips required for consumer. 2009 Logistics Research Center Study found 24X $CO_2$ for a conventional car trip as compared to truck delivery. |
| **Returns** | |

| | |
|---|---|
| 1-4% average return rate, 1/2 of returns can be repaired and returned to customer. | Up to 20% for in-store purchase (Reverse Logistics Executive Council, 1999), up to 40% returns for online purchases (RLEC, 1999). |
| **Resale and Distribution** | |
| More precise return & repair leads to less need for secondary markets. | 42% product value lost by the season end, leading to extensive markdowns. Additional distribution cycles and facilities are needed to sell unsold product. |
| **Post-Transaction** | |
| 36% of Spreadshirt customers would wear their custom shirt every time it is clean (Eggers, 2009). | Lack of Post-Transaction data outside of returning customer sales. |

***Table 1-1.*** MC vs. MP comparisons.

### 1.6 Summary of Energy and Environmental Benefits

The 2009 ethnographic study illustrates the key trade-offs between MC and MP production and provides key insights on how to design future experiments that can provide meaningful data on energy and environmental benefits not fully understood in a traditional product lifecycle analysis (which is not the focus of this thesis). The biggest advantage for MC came from the percentage of returns 1-4% (MC) vs. 20-40% (MP), which reflects the fundamental difference between push vs. pull marketing of products. Returns are generally a function of incorrect fit, poor aesthetic matching, lax policies on returns of retailers (especially in the U.S.), and purchasing behavior influenced by end-of-season sales. These aspects are directly attributable to overproduction due to poor forecasting and the use of standard sizing. In addition to these issues, MP also requires a vast distribution and retail network that is highly consumptive of energy resources including the embodied energy in the bricks and mortar retail stores plus energy used in operating this network. Returns also necessitate redistribution and the associated repacking of products. The low return rate for MC products translates to much lower inventory levels as products are only made once an order is made.

A surprising discovery was the extremely high rates of carbon emissions due to trips made by the customer in the offline MP scenario. Compared to truck delivery the emissions rate for a personal automobile was more than 24 times for a single trip to purchase a single product (Edwards et al. 2009). In contrast to this, the high $CO_2$ rates for airfreight vs. traditional shipping gives MP a big advantage on emissions for the primary delivery mode.

The full impact of customer travel is not completely understood thus necessitating the design of our experiments to track where consumers shop and how they traveled. In addition to purchase behavior within the customer retail experience, a study of use patterns in the post-transaction phase is also required. Most intriguingly, is the 36% use rate reported by Spreadshirt, an MC maker of t-shirts, that customers would wear their custom products each time (if it were clean) and this leads us to believe there is a vast uncovered areas of research in post-transaction and its effects on energy use and environmental impact.

### 1.7 What is Smart Customization?

This chapter introduces the benefits and advantages of the current MP and MC production models. Many of the benefits are not obvious and counter-intuitive at first glance, such as emissions due to the last leg of delivery by the customer or the frequency of use after the retail transaction. Unraveling these benefits requires further examination through observation, collection of data, and analysis of case studies. This thesis will focus on this aspect in chapters 3, 4, 5, and 6 by setting up a number of experiments and surveys to understand the environmental aspects in the manufacture, distribution, and use of both MC and MP products. The outcome from these experiments discussed in chapter 7 is an evidenced-based guide for making better environmental decisions by both manufacturers and consumers. This guide forms the basis for creating a new production model called Smart Customization that combines the existing advantages of current models that takes a total ecosystem approach towards producing low-carbon and customizable products.

# Chapter 2

# Research Questions and Hypothesis

## 2.1 Research Questions

The field of product life-cycle analysis is well studied for the production and distribution of simple products like plastic utensils to complex products like automobiles. However, manufacturers today do not yet fully understand the role of consumer behavior and its effects on energy usage and the environment during the retail customer experience (product acquisition) and post-retail experience (use) of products. In the apparel industry, often the only data manufacturers have is whether a follow-up purchase is made. This understanding of consumer behavior outside manufacturing and distribution is necessary for developing a comparative environmental study of MC and MP models. The three key questions for this research are 1) how to create a methodology for gathering and analyzing data about environmental benefits directly attributable to consumer behavior, 2) does the current model for MC or MP provide demonstrable advantages, one over the other, under different conditions, and finally, 3) are there opportunities for developing new or perhaps hybrid models that take advantage of the benefits of both existing MC and MP models?

## 2.2 Hypothesis

Current MC practice possesses environmental advantages over MP practice that are not obvious or are understudied. This thesis examines, in a comparative manner, the trade-offs between the practices of MC and MP, by 1) broadly studying the major process flows in product manufacture and distribution, and 2) by conducting detailed experiments simulating both the MC and MP consumer experience using test subjects. This study places particular focus on determining the energy devoted to the consumer retailing experience as well as in the utilization of the product (post-retail). By developing new methodologies for understanding consumer behavior, this study will provide real and quantifiable data on actual decisions made by consumers as well as on their daily use patterns. This data can then be used to showcase the greater utility of MC products through more frequent use, higher perceived value, greater product engagement, and the ability of manufacturers to mitigate overproduction and to lower returns and inventory levels. If the data shows that MC processes inherently produce more environmentally sound and sustainable products, then manufacturers of both MC and MP products can make both short and long term strategic decisions on their current practices and accelerate the adoption and development of current MC models.

## 2.3 Why are we asking these questions?

The MC community has traditionally sought to differentiate itself from MP by focusing on the creation of unique products in an economical fashion. However, environmental sustainability has recently emerged as a major theme within the literature, at conferences, and in MC product advertising. The most recent MCPC 2011 in San Francisco devoted an entire track with three separate sessions to sustainability and MC and included a keynote by the CEO of Zazzle on the environmental advantages of MC.

Much of the literature on the sustainability of MC strategies has focused on waste reduction through the utilization of pull-based marketing strategies (e.g., Build-to-Order) that reduce inventory costs. The Sander's report, previously discussed in Chapter 1, categorizes waste in stocks such as warehousing, but also as non-actuality (markdowns and discounts to move undesirable product). Yet it is difficult to determine whether MC is actually making any environmental impact because of the limited extent to which MC is practiced. The evidence provided is little, aside from a few inconclusive studies on supply-chains that MC is performing better than MP (Larrson et al. 2011). The focus of these studies and assessment frameworks is primarily on the production of MC products. One of the few papers that focus on the carbon emissions of custom products is that of Frank Stein and Robin Kleer which focuses on the carbon footprint of a custom shoe manufacturer in Germany. In their paper, "Mass Customization: Bridging Integration and Sustainability?" they argue that the current environmental policies and incentives are not enough to motivate manufacturers into more sustainable practices and that the customer could be an enabler for this shift because MC requires direct involvement from the end-user (Kleer and Stein 2011). They conduct a carbon accounting for Selve, a manufacturer of high fashion shoes, focusing on manufacturing and distribution and determine that nearly 50% of the emissions are due to customer movement. Their paper suggests the elimination of customer travel, by better utilizing online tools and shifting manufacturing closer to the customer (both of the these points are also discussed in this thesis). Given the lack of both in-depth and broad research in the sustainability of MC practices, this thesis can provide a sizable contribution especially in the short term.

A lack of research on the sustainability of product use as exists for comparing MC vs. MP models. A study by Levis Strauss, discussed in Chapter 7, determined that over 50% of the energy used in the entire life of a pair of jeans is during the use of the product (Levis Strauss 2009). Yet, this

does not account for the differences between custom and standard jeans. It thus becomes a critical task to ask hard questions about the potential and real impact that MC has on the environment.

If the results of this study provide clear evidence of the benefits of MC, then a fundamental change is possible in current production practices. But, how can we qualify these claims and test the theory? One strategy is to examine existing products with available data from manufacturers on their production and distribution. The products need to be: 1) meaningfully customized (i.e., not just by superficial customizations such as color or graphics), 2) capable of being tracked during use, 3) frequently used, to improve sample size, 4) customized online, and have 5) enough complexity to demonstrate scalability of our test methodology.

### 2.4 A Case Study in Men's Dress Shirts

The rapid growth of online MC men's dress shirt makers provides a plethora of opportunities to interact with local companies that are mostly in the start-up phase and willing and eager to share information on their operation. A simple Internet search will yield dozens of manufacturers ready to provide custom services. The variety and range of MC offerings in men's dress shirts are extensive. They include both new players and established brands creating new made-to-measure offerings. In addition to the availability of shared information, here is a list of other factors contributing to the selection of men's dress shirts:

Cost – The relatively low cost of conducting a study with a small set of test subjects (20-30) allows for the design of an experiment where each subject can acquire both an MC and MP shirt.

Frequency of Use – Men's dress shirts in a professional environment will be used often (4-5 times a week), thus the tracking timeline of 3-months will yield approximately 60 days of data for each subject. In contrast, a study of men's boots or women's jeans would require much more time to examine.

Variety – Even though many dress shirts in the professional environment are either white or a shade of blue, the changing culture of the office towards more business casual dress codes, allows for the study of variety. MC dress shirts can be configured into nearly limitless combinations of colors and textures with many variations for cuffs, sleeves, collars, and other components.

Meaningful Customization – MC men's dress shirts epitomize the core customization benefits of fit, function, and aesthetics and thus the subjects can meaningfully customize a shirt (many, for the first time). This also allows for a direct comparison with standard shirts, which have almost no customization. In addition to fabric color and textures, subjects can have exacting fit, selection of key components like cuffs, color, placket, buttons, as well as personalization (monograms).

Online and offline Purchase – Both MC and MP dress shirts can be purchased online or locally offline.

Relative Complexity – Dress shirts are relatively complex to manufacture and distribute. Shirts have components that must be cut to standard or custom sizes, assembled together (either hand sewn or sewn in semi-automated fashion), and packaged before being distributed into often complex distribution networks requiring sophisticated supply chain management. A comparable study would be to examine men's custom T-shirts. However, the focus of the study would be more on the cosmetics (graphics and the techniques to apply them to shirts) rather than on the material processing, fabrication, assembly, and distribution – aspects that are scalable to many

other more complex products.

Traceability – Dress shirts can be cataloged through manual inspection and data entry of each shirt's characteristics (brand, size, color, fabric, material, features, etc.) and in some cases bar codes, QR codes, and even RFID tags are embedded into shirts. This study does examine how the introduction and embedding of tracking technologies enables researchers to conduct precise data collection.

Local Collaboration – Two of the three manufacturers participating in the study are local to the Media Lab, thus enabling face-to-face interaction. They have provided men's dress shirts at cost, thus enabling this study to take on more participants. The MC companies include Blank Label (Cambridge), 9Tailors (Boston), and Dillon Road (New York City).

## 2.5 Thesis Outline

This section outlines the overall structure of the thesis research and describes the goals of each stage of the study.

Environmental Impact Analysis of MP and MC
This chapter examines the existing models of MP and MC shirts from the perspective of manufacturing, distribution, and the retail experience. A careful analysis of the production of shirts, their distribution, and acquisition by the end-customer is examined, as well as the environmental and energy trade-offs. Three MC manufacturers (Blank Label, 9Tailors, and Dillon Road) participated in this study by offering their products, as well as provided data vital to this analysis. The three areas of focus for this chapter are 1) carbon emissions for the transport of the product, 2) waste, and 3) return rate.

Quantitative Survey of Shirt Usage and Ownership Patterns
A survey of the general public was designed to acquire information on shirt ownership, maintenance, purchasing behavior, and basic demographics. This allows the study to establish a basic understanding of the state of today's MP and MC market for men's dress shirts as well as to establish a baseline to compare the results from our experiments. The general survey allowed us to also determine candidates for later phases in the study.

Experiments
Two sets of experiments were conducted to test our hypothesis. Our first task was to identify candidates that were willing to participate in two additional phases: 1) shirt acquisition and 2) shirt tracking. We were able to identify two sets of participants. The first was the offices of MIT's Technology Review Magazine, located near the Media Lab and the second was Fidelity's Center for Applied Technology (FCAT), a division based in downtown Boston. Each office started with roughly one dozen participants each.

The goal of the experiments was to examine the differences in the acquisition and use (post retail) between MP and MC men's dress shirts. As a follow-up to the 2009 research, the experiments were designed so that participants could shop for and wear two new shirts (one MC, one MP) in addition to their other dress shirts (up to 30 total) for a period of roughly 3 months. The experiments are also designed to closely mimic everyday shopping and purchasing behavior, as well as wearing behavior in a typical office environment.

Experiment I: Shirt Acquisition + Survey
Each participant was provided one free online coupon for "purchasing" a new MC shirt. The

subjects were also divided equally between the three MC providers and asked to design a new MC shirt and to make observations of the process through an online survey. Each participant also received a gift card to purchase an MP (online or offline) at any retailer of their choosing and was then asked to fill out an online survey of their observations. Both the online coupon and gift card were similar in retail value (approximately $100). Results from this survey are discussed in Chapter 5.

Experiment II: Shirt Tracking and Use Patterns
After the acquisition of their new shirts (approximately 4-6 weeks later), subjects were asked to lend us all of the shirts that they normally wear for work. The shirts were then tagged with washable RFID tags, catalogued, and then returned for their use. An RFID tracking system was developed and deployed at each office location, so that the experimenters could remotely detect which shirts were worn on each day for a 3-month period. The RFID system was chosen to be the best technology in order to achieve high levels of compliance without disrupting everyday office routines for the participants. Shirt utilization and the other results of this experimental phase are discussed in Chapter 6.

End-of-Study Interviews (Appendix)
Test subjects were interviewed after the shirt tracking stage to answer questions about their experiences with the new shirts, including patterns of use, utility of each shirt, perceived value, willingness to pay, and any other benefits or drawbacks for each shirt. This interview also allowed us to verify proper cataloging data analysis, as the subjects were not asked to confirm which shirts were the new shirts until the tracking was finished.

Conclusion
Chapter 7 draws concluding comparisons amongst the various production, distribution, retail, and use models to provide an evidence-based guide for both manufacturers and consumers. The concluding chapter also intuits new models that synthesize the best of each model as well as the scalability of both existing and new models for more complex products and services.

### 2.6 Thesis Time Line

The following table outlines the thesis research and describes each stage of the study. This table will be repeated near the beginning of each chapter and the current chapter will be highlighted in yellow.

| Chapter 3 | Chapter 4 | Chapter 5 | Chapter 6 | Chapter 7 |
|---|---|---|---|---|
| **Environmental Impact Analysis of MP and MC** | **Quantitative Survey of Patterns of Shirt Usage and Ownership** | **Experiment I: Shirt Acquisition and Follow-up Survey** | **Experiment II: Shirt Tracking and Use Patterns** | **Conclusion** |
| Desk Research | 750 Respondents (276 used in analysis) | 18 participants | 18 participants | All Respondents and Participants |
| Interviews with MC and MP shirt makers | Survey of Shirt Owners of: MP and MC shirts | Acquisition of new shirts: 8 Made-to-Measure (MM), 10 Custom | Shirt Cataloging and Shirt Tracking (60 days of shirt data) | Data Visualization and Analysis |

| | | | | |
|---|---|---|---|---|
| | | Tailored (CT), and 18 MP | | |
| Oct 15 (2009)-Aug 31 | Jun 15 - Dec 22 | Acquisition + Survey (Feb 16-Mar 16), Design of Tracking System (Oct 15-May 7) | Cataloging (Apr 13-23), Tracking (May 7-Aug 31) | Aug 1-31 |
| 2009 to 2012 | 2011 | 2012 | 2012 | 2012 |

***Table 2-1.*** Thesis time line.

# Chapter 3

# The Environmental Impact Analysis of MP and MC

### 3.1 A Case Study MC and MP production and Distribution

This study takes an analytical approach to unveiling the key trade-offs in the production, distribution, and retail experience of MC and MP products. In this chapter, I focus on creating an environmental impact analysis of MP and MC production and distribution in order to sketch the present state of current models. Our analysis is based on our dress shirt case study (of 2009) as well as on interviews with the MC manufacturers (2012) that we have engaged in this study. Ethnographic research and experiments designed to collect information on the acquisition and use of dress shirts are reviewed in Chapters 4, 5, and 6, and provide the necessary additional data that this value chain analysis cannot deliver.

Men's dress shirts in this study are defined as a shirt that can be worn with a tie with the following components: collar, yoke, full button down placket front, short or long sleeves, and cuffs (in the long sleeve case). Men's dress shirts in this study are shirts worn in a professional office during normal business days (Monday through Friday). They are not casual shirts (e.g., Polo or Hawaiian) or used on occasional situations (e.g., weddings).

### 3.2 Thesis Time Line (Chapter 3)

| Chapter 3 | Chapter 4 | Chapter 5 | Chapter 6 | Chapter 7 |
|---|---|---|---|---|
| **Environmental Impact Analysis of MP and MC** | Quantitative Survey of Patterns of Shirt Usage and Ownership | Experiment I: Shirt Acquisition and Follow-up Survey | Experiment II: Shirt Tracking and Use Patterns | Conclusion |
| Desk Research | 750 Respondents (276 used in analysis) | 18 participants | 18 participants | All Respondents and Participants |
| Interviews with MC and MP shirt makers | Survey of Shirt Owners of: MP and MC shirts | Acquisition of new shirts: 8 Made-to-Measure (MM), 10 Custom Tailored (CT), and 18 MP | Shirt Cataloging and Shirt Tracking (60 days of shirt data) | Data Visualization and Analysis |
| Oct 15 (2009)-Aug 31 | Jun 15 - Dec 22 | Acquisition + Survey (Feb 16-Mar 16), Design of Tracking System (Oct 15-May 7) | Cataloging (Apr 13-23), Tracking (May 7-Aug 31) | Aug 1-31 |
| 2009 to 2012 | 2011 | 2012 | 2012 | 2012 |

***Table 3-1.*** Thesis time line (Chapter 3).

### 3.3 Comparing Made-to-Measure, Custom Tailored, and Off-the-Rack Dress Shirts

This study compares three distinct shirt types and includes two different MC shirt types:

Mass Customization (MC) Shirt Definitions

Made-to-Measure (MM) – Men's dress shirts that are "Made-to-Measure" are available through an website that allows customers to remotely design and configure a custom-made dress shirt, which is then delivered through the mail. MM dress shirts are made to order according to dimensional specifications provided by the customer through an online configurator. MM shirt manufacturers also allow for a vast variety of fabric choices, collars, cuffs, and plackets as well as personalization through monograms.

Custom Tailored (CT) – Men's dress shirts that are "Custom Tailored" are similar to MM shirts in their manufacture and provide similar customization features (like fit and shirt components). However, the interface with the customer is not a website, but rather engagement with a style consultant. This agent of the CT retailer will either conduct office visits – otherwise known as Hong Kong style tailoring – to consult one or multiple clients or the customer will visit the style consultant at a retail location. The style consultant will provide professional design advice along as well as take measurements (similar to a traditional tailor). Some CTs will deliver the final product to the office of the customer and perform a second fitting. If there are any changes to be made, the manufacturer will make changes locally (if it is possible) before the final delivery of the

shirt.

Mass Production (MP) Shirt Definition
Mass Produced (MP) – The MP shirts in this study are men's dress shirts that can be purchased "off-the-rack" in a standard size in either a physical retail store or from an online retailer. MP shirts do not offer any fit customization except for style cuts (i.e., slim fit, classic, etc.), nor any special features chosen by the customer. The design of MP shirts is normally pre-determined by market forecasting by retailers in advance of production. This study includes both online and offline MP shirts.

Why two different MC shirts?
This study includes two MC shirts: Made-to-Measure (MM) and Custom Tailored (CT) Shirts. We included both types of MC shirts because the production process is very similar. They both require orders to be sent electronically to a contract manufacturer who typically produces custom dress shirts to order. The finished product is also shipped via air either directly to the customer or to the CT offices for the customer to pick up (or in some cases, for the CT retailer to deliver). The primary difference between CT and MM is the interface with the customer. MM relies on web tools, whereas CT relies on design consultations. There are energy trade-offs between these two models, but this only accounts for a portion of the total energy consumed by the system. By including both MC models, we can study not only the major differences between MP and MC shirts, but also the subtle differences between MC models, particularly in terms of the retail experience and shirt utilization.

Focus of Environmental Analysis
This chapter will also examine a number of areas of environmental benefit. Below are the key areas:

Carbon footprint (transportation) – Carbon emissions related to the transportation of materials from fabric mills to manufacturer to retailer to the end customer. These emissions will also include transportation of persons in the process of acquiring the final product, such as a consumer driving to the retail store or a style consultant visiting a number of clients in an office. Carbon calculations are computed through the use of traditional carbon counting for ground transportation. Sourcemap, an open source visualization tool for supply chains, created by Media Lab alumnus Leonardo Bonnani, will also be used.

Waste – This study examines, whenever data is available, the volume of waste created in the process of making a MP or MC shirt. It also looks at the alternative strategies manufacturers use to better utilize materials, such as recycling or the creation of new products (e.g., pocket squares made out of shirt fabric).

Return rates – A subcategory of waste is the number and percentage of returns for each manufacturer. This study will look at these rates as well as the subset of alterable shirts vs. shirts that are completely discarded or donated.

This study will not examine carbon emissions created by the physical infrastructure (factory, distribution network, retail locations, office/studios) required for the production of men's dress shirts. This includes the embodied energy in the production of those buildings and the energy required to operate them. This study also does not include energy connected to personnel needed to run those operations (for example: emissions created by retail clerks that commute to work). Even with reasonable data, this full lifecycle analysis is a complex undertaking and outside the intent of this study.

### 3.4 Carbon Accounting

Calculations for carbon footprint are divided into two categories. The first is for carbon emitted by passenger travel. This includes consumers moving to and from their home or office to retail locations, as well as style consultants moving to and from their offices to their client locations. The second type of calculation is for the shipping of goods (in this case, shirts) from the point of manufacture to the point of sale or use (the home of consumer in the case of online retail and MM). Below is a table (3-2) that describes how $CO_2$ is calculated for both types of movement. Carbon for passengers is expressed by $CO_2$ per passenger-mile – that is how much carbon is emitted by transporting one person one mile. The amount of $CO_2$ to move one person one mile, assuming a fuel efficiency of 21 MPG (US fleet average) in 2011, is equal to 423g of $CO_2$ (EPA, Greenhouse Gas Emissions from a Typical Passenger Vehicle, 2011). While, cargo shipping is expressed in $CO_2$ per ton-mile – that is how much carbon is emitted by transporting one ton of cargo one mile. For this study, emissions for shirt shipping require converting ton-miles to shirt-miles, by converting ton-miles first to pound-miles (by dividing by 2000lbs), then multiplying by the number of pounds a packaging containing a shirt weights. A shirt in this study is estimated to be 0.324lbs (1 meter of material). Once these conversations are made, then the total carbon emitted for any trip segment is calculated by multiplying the distance by the $CO_2$ per passenger-mile or shirt-mile. Assumptions are in italics below all tables.

| | **Passenger Mode** | **$CO_2$ per passenger-mile (Kg)** | **$CO_2$ per passenger-mile (lbs)** | | |
|---|---|---|---|---|---|
| * | Passenger Car | 0.423 | 0.93255 | | |
| ** | Rail / Subway | 0.159 | 0.35000 | | |
| ** | Bus | 0.080 | 0.17637 | | |
| | **Cargo Mode** | **$CO_2$ per ton-mile (Kg)** | **$CO_2$ per lb-miles (Kg)****** | **$CO_2$ per shirt-miles (kg)******* | **$CO_2$ per shirt-miles (lbs)** |
| *** | Container Ship | 0.0403 | 0.0000202 | 0.000006529 | 0.00001439308 |
| *** | Truck | 0.1693 | 0.0000847 | 0.000027427 | 0.00006046523 |
| *** | Air Cargo | 0.8063 | 0.0004032 | 0.000130621 | 0.00028796879 |
| *** | Train Freight | 0.1048 | 0.0000524 | 0.000016978 | 0.00003742916 |

***Table 3-2.*** Carbon emissions for passenger and cargo travel.

**Assumptions**

**Passenger vehicle assumes an average fuel efficiency of 21 MPG (US Fleet average in 2011), which emits 423g $CO_2$ per passenger-mile*

***Rail and Subway assume 0.3Kg of $CO_2$ per passenger-mile (for short distances), while buses assume 0.08Kg of $CO_2$ per passenger-mile (long distance)*

****Carbon Emissions for cargo shipping expressed in $CO_2$ per ton-mile (Kg)*

*****Conversion from ton-miles to lb-miles*

******Conversion from lb-miles to shirt-miles by multiplying the number of poulds in one shirt (1 shirt = .324 lbs or meter of material)*

*$CO_2$ emissions estimates for all modes except passenger car are from Environmental Impact of Transport (Wikipedia)*

The carbon emissions totals for passenger modes can be divided for each passenger in the vehicle to compute the final carbon count per passenger. This is particularly useful in shopping situations when there might be more than one passenger per vehicle (e.g., spouse traveling with partner).

The second type of calculation in this study is the travel distances required for each model. Using Leonardo Bonnani's Sourcemap, an open source visualization tool for computing carbon footprint

for products, calculations can be made for travel distances. Sourcemap has a simple interface which requests information about where the components of the product originate and the type of shipping used to transport them between their origin, processing facility, and final destination. This study only uses Sourcemap's distance projections and not the carbon estimates because passenger travel is not part of Sourcemap's interface. Sourcemap focuses almost entirely on carbon emissions due to the shipping of materials and components to make products. However, this study does correspond with Sourcemap's estimates for carbon emissions for cargo shipping. The screen capture below (Figure 3-1) shows Sourcemap's graphical interface. Users of the system input the original of the material (fabric from Italy, in this case) and connect it to the next step in the production process (shirt factory in China), which is then shipped, via freight to the United States.

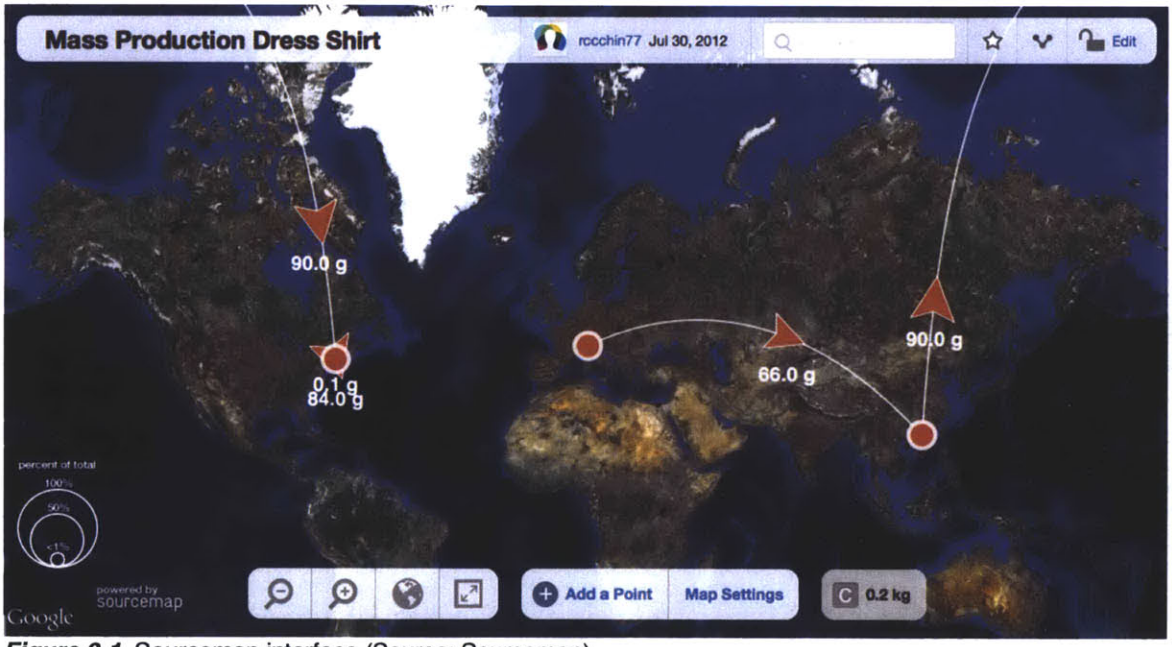



***Figure 3-1.*** Sourcemap interface (Source: Sourcemap).

Sourcemap can provide the very finely grained calculations which are necessary for this study. The map below (Figure 3-4) illustrates the final stages of product delivery from the port of Boston to a local distribution center and eventually to a local shopping mall:

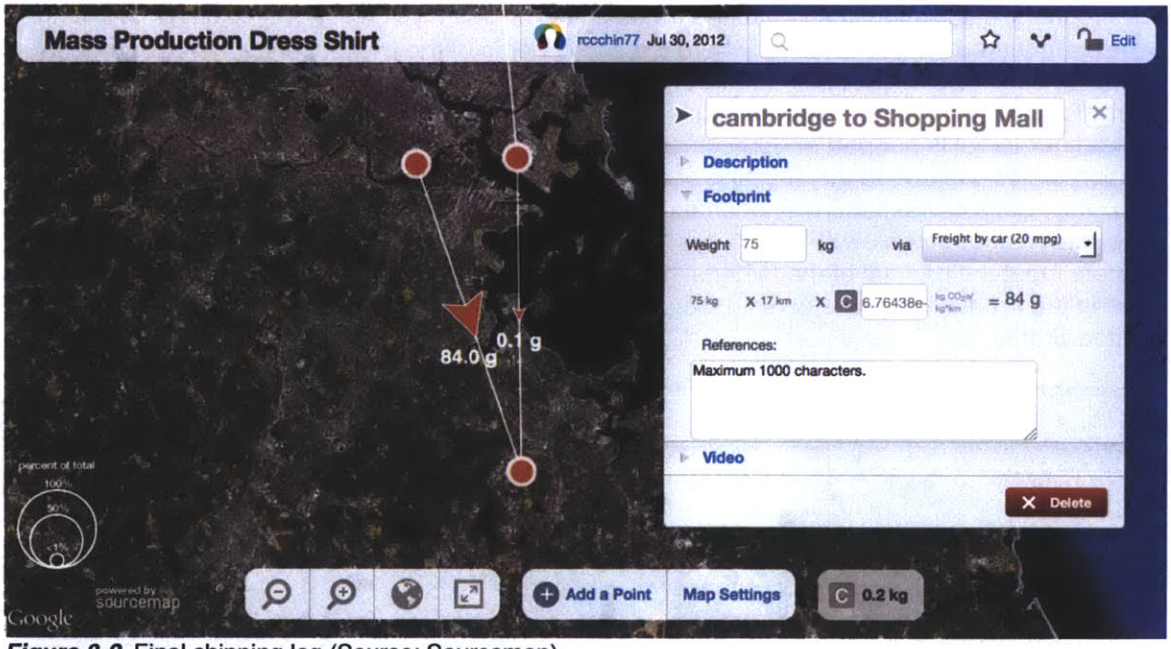



***Figure 3-2.*** Final shipping leg (Source: Sourcemap).

This study assumes that container shipping from Asia to the US is direct to the nearest port (Boston), even though it is likely that the container ship may travel to a more distant port and then the goods be shipped by rail or ground freight. This assumption is utilized throughout all $CO_2$ calculations for all scenarios. Studies of credit card data often show that multiple purchases are made during trips which will reduce the amount of emissions per shirt. However, this study assumes that all passenger travel is in a single occupant vehicle for the sole purpose of purchasing a shirt in order to simply calculations (Pentland, 2012).

### 3.5 MP Production, Distribution, and Retail (Offline)

MP offline is the most prevalent retail model today in apparel. The diagram (Figure 3-1) represents the major product and customer flows and how they meet. This model represents the benchmark standard for comparing MP Online, MM, and CT models.

The scale and variety of MP dress shirts are typically determined by forecasting up to one year in advance. This is due, in part, to lower production costs in developing nations, coupled with longer lead times due to freight shipping. Fabrics and other materials are typically shipped to the MP production facility from all over the world and are then processed through standard production techniques that employ product lines including: automated multi-layer cutting, semi-automated sewing, and packaging. The finished product is then shipped in shipping containers and distributed to markets around the globe. After several months of shipping, the product is then carried through a sophisticated supply chain networks that potentially include: central distribution centers, regional distribution, and finally, retail stores. This "Bricks and Mortar" distribution network is extensive due to the sheer volume of production needed to reach mass markets.

The customer side of this equation often starts with trips to retail locations (shopping malls, business districts, and other places of commerce) to engage in the shopping experience. Customers may visit one or more retail stores, sometimes in multiple locations, using one or more modes of transportation (typically a private, gasoline-powered automobile) to “touch and feel” the product through browsing and trying shirts on in fitting rooms. If customers don't find what they

want, they often will try another store or even stop and try again on another occasion. The challenges of this model, as discussed in Chapter 1, include over-production of shirts, waste of stocks, high return rates, large distribution network, and the high-energy costs for customer travel.

Below (Figure 3-3) is a diagram describing the material, product, and consumer movements within the MP model for offline retail. Each icon labeled with a rectangular box containing two figures. The first number represents the state number, so that the reader can follow the production steps in sequence, and the second number represents the percentage of carbon emissions for that stage relative to total emissions for production, distribution, and retail.

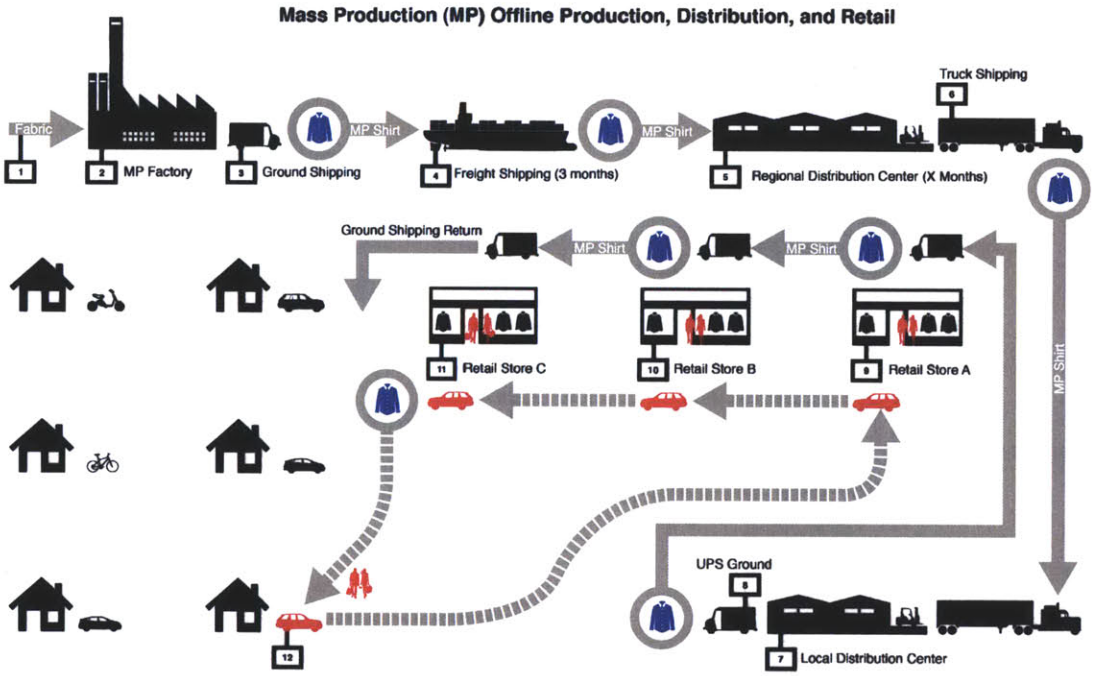



***Figure 3-3.*** MP Offline flow diagram.

Here is the sequence of events:

1) Fabric is shipped to MP factory (normally located in developing countries)
2) MP factory produces men's dress shirts using a variety of techniques including automated cutting, sewing by manual labor assisted by sewing machines, button stitching with machine assistance, as well as packaging of the product.
3) The product is then ground shipped to the nearest port.
4) Freight shipping can take multiple forms (cargo ship, oceanic freight ship) to the nearest port within the domestic market.
5) The product is sorted at the regional distribution network.
6) The product is sent on truck or freight train to local distribution centers.
7) The product is further sorted and then distributed at local distribution centers.
8) Ground shipping from local distribution centers completes the product movement to retail locations.
9) (9-11) Retailers accept the product, and then display and store while waiting for customers.
12) The customer then travels to store(s) to shop and acquire the product (typically in a

private automobile).

### 3.6 MP (Offline) Environmental Impact

Three different carbon scenarios are computed for each mode of production (MP online/offline, CT, and MM). The first scenario is for one dress shirt. This serves as the "ideal" case since it assumes zero returns. The second scenario is based on the constraints of our study. It assumes all the rules of engagement that we established and accurately portrays what our participants actually did throughout the study. The third scenario is the "typical" scenario for which each manufacturer operates on an everyday basis. For example, many CT providers visit up to 10-15 customers per office visit, thus the carbon footprint for the style consultant can be divided by the number of customers. In the case of our study, six participants were measured during the first office visit. The next section tabulates the carbon footprint for all three scenarios:

MP Offline Trip Segments

A. Fabric Mill (Italy) to (China)
B. Factory to US port
C. US port to retail location (shopping mall)
D. Customer home to retail location

One Shirt Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Container Ship | 5793.7 | 0.0000143931 | 0.08338867 |
| B | Container Ship | 7940.5 | 0.0000143931 | 0.11428827 |
| C | Truck | 9.9 | 0.0000604652 | 0.00060114 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| D | Passenger Car | 16.4 | 0.9325542600 | 15.29388986 |
| | | | | **15.49** |

***Table 3-3.*** MP Offline one shirt scenario carbon emissions.

**Assumptions**

- *Fabric Mill in Milan, Factory in Shenzhen, Port in Boston*
- Shopping mall one-way distance is 8.2 miles (general survey average)

Study Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Container Ship | 5793.7 | 0.0000143931 | 0.08338867 |
| B | Container Ship | 7940.5 | 0.0000143931 | 0.11428827 |
| C | Truck | 9.9 | 0.0000604652 | 0.00060114 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| D | Passenger Car | 18.8 | 0.9325542600 | 17.53202009 |
| | | | | **17.73** |

***Table 3-4.*** MP Offline study scenario carbon emissions.

**Additional Assumptions**

- *15 of the 18 participants purchased a shirt offline and traveled an average round trip distance of 9.4 miles.*
- *60% of the participants that answered the travel question traveled by automobile.*

Typical Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Container Ship | 5793.7 | 0.0000143931 | 0.08338867 |
| B | Container Ship | 7940.5 | 0.0000143931 | 0.11428827 |
| C | Truck | 9.9 | 0.0000604652 | 0.00060114 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| D | Passenger Car | 16.4 | 0.9325542600 | 15.29388986 |
| | | | **Subtotal $CO_2$** | **15.4921679** |
| | | | **Carbon Penalty** | **3.0984336** |
| | | | **Total $CO_2$** | **18.59** |

***Table 3-5.*** MP Offline typical scenario carbon emissions.

**Additional Assumptions**

- *Shopping mall one-way distance is 8.2 miles (general survey average)*
- 94.1% of survey respondents drive a personal automobile for shopping
- *Return rate approximately 20% for apparel in-store retail (RLEC, 1999)*
- *Carbon penalty for returns = % return rate multiplied by $CO_2$ for additional round trip by customer*

Waste – According to Sanders Consulting (2005) the waste for the textile industry is approximately $300B per year. There is general lack of available data on exact waste within the men's dress shirt industry.

Return rates – Data is difficult to obtain for MP men's dress shirts. As a comparison, the average return rate is that approximately 20% of offline apparel is returned according to the Reverse Logistics Executive Council's study (Rogers 1999). Returned products were then resold to secondary markets and outlet malls at (38%), thrown away (29%), restocked and re-shelved (24%), and donated (8%).

### 3.7 MP Production, Distribution, and Retail (Online)

The online version of MP shirts mimics offline MP with some notable exceptions. The first key difference is the use of the internet as the interface to the customer. This allows the MP provider to accumulate data instantaneously and electronically to improve their supply chain as well as to make forecasts for the following season. This also reduces the number of potential customer trips. The diagram below (Figure 3-4) graphically describes the MP online production, distribution, and retail experience:

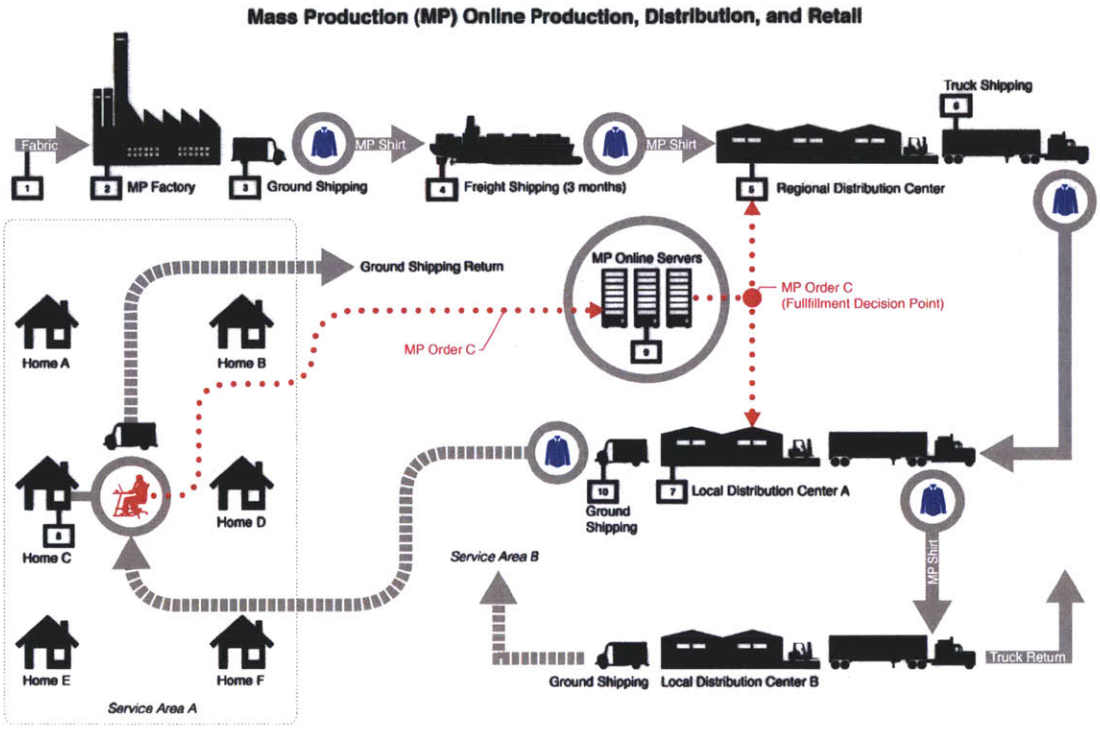



***Figure 3-4.*** MP Online flow diagram.

Here is the sequence of events:

1) Same as MP offline until step 6.
7) The product is distributed to the first of many local distribution centers.
8) The customer orders the MP shirt online.
9) Order fulfillment is processed by the retailer to the nearest distribution center.
10) The product is ground shipped to the customer.

It is important to note that step 9 (fulfillment decision point) is a crucial point in the process. It is at this point that the retailer determines the availability of the desired product in the supply chain and the means of delivering it to the customer. If there is enough inventory, at either local or regional points, then shipping can commence at the point closest to the customer (this may include retail locations, for some MP retailers). This will then dictate the carbon footprint as well as the time to deliver the product.

### 3.8 MP (Online) Environmental Impact

Carbon footprint (transportation) – Calculations for MP online utilize many of the same assumptions for MP offline. The $CO_2$ emitted to deliver one shirt is equal to 0.20lbs. The typical and one shirt scenario are nearly the same, while the typical scenario is 0.28lbs due to a return rate of nearly 40%. These calculations are shown below:

MP Online Trip Segments

A. Fabric Mill (Italy) to (China)
B. Factory to US port

C. US port to retail location (shopping mall)
D. Distribution Center to Customer

One Shirt and Study Scenario – Calculations for one shirt and the study case are identical in this case as the distance from home to shopping locations are nearly identical.

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Container Ship | 5793.663204 | 0.0000143931 | 0.08338867 |
| B | Container Ship | 7940.500009 | 0.0000143931 | 0.11428827 |
| C | Truck | 9.941936 | 0.0000604652 | 0.00060114 |
| D | Truck | 8.2020972 | 0.0000604652 | 0.00049594 |
| | | | | **0.20** |

***Table 3-6.*** MP Online one shirt and study scenario carbon emissions.

**Assumptions**

- *Manufacture and shipping the same as MP Offline*
- *Last segment of distribution via truck freight (16 ton)*
- *Distribution travel same as travel distance for customer to retail location*

Typical Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Container Ship | 5793.7 | 0.0000143931 | 0.08338867 |
| B | Container Ship | 7940.5 | 0.0000143931 | 0.11428827 |
| C | Truck | 9.9 | 0.0000604652 | 0.00060114 |
| D | Truck | 8.2 | 0.0000604652 | 0.00049594 |
| | | | **Subtotal $CO_2$** | **0.19877402** |
| | | | **Carbon Penalty** | **0.07950961** |
| | | | **Total $CO_2$** | **0.28** |

***Table 3-7.*** MP Online typical scenario carbon emissions.

**Assumptions**

- Return rate is approximately 40% for online apparel sales (RLEC, 1999)
- Carbon penalty for returns = subtotal Carbon multiplied by 40%

Waste – Data on waste for MP online men's dress shirts is sparse; therefore no conclusions can be made for this metric.

Return rates – Data is also difficult to obtain for MP online men's dress shirts. As a comparison, the average return rate was approximately 40% of online apparel is returned according to the Reverse Logistics Executive Council's study in 1999. More recently, Edwards et al. (2010) reported in their paper "Carbon Implications of Returning Unwanted Goods Ordered Online" return rates ranging from 25-40% and 27% from the Business Link (2008) for clothing. As a comparison, Fast Company has reported claims of over 50% return for companies like Zappos, an online show retailer, that have integrated returns as part of their business strategy.

### 3.9 MM Production, Distribution, and Retail

The MM dress shirt maker for this study is Blank Label. It is based in Cambridge, MA. They

provided shirts for the experiments as well as data on their production, distribution, and retail experience. This analysis focuses on providing the most realistic and accurate depiction of Blank Label's process based on interviews. As opposed to the generalizations of MP (online and offline), this MM analysis will be as specific as possible. The graphic below represents their process flow:

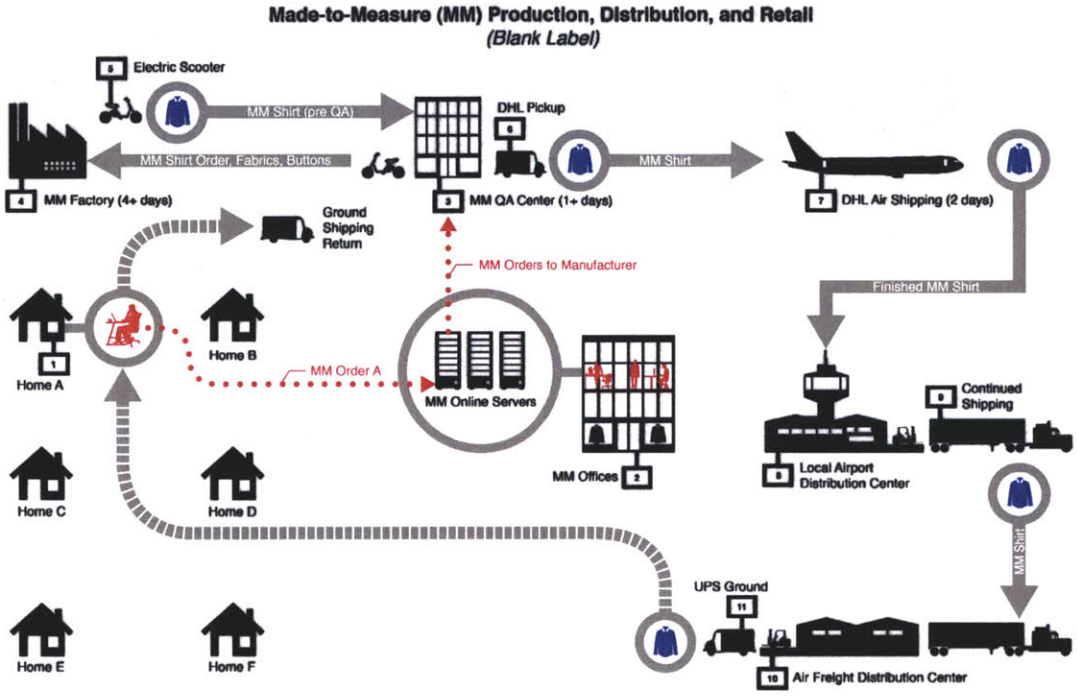



***Figure 3-5.*** MM (Blank Label) flow diagram.

Here's the sequence of events:

1) Customer visits MM website and designs a custom men's dress shirt.
2) The customer's order is verified and fulfilled by the MM manufacturer who sends specifications to their operations in Shanghai.
3) MM Quality Assurance (QA) center receives order, then prints a tracking slip, cuts two yards of the specified fabric from their own inventory, pulls the buttons from inventory, and sends the shirt order and materials to MM factory via electric scooter (less than one mile away)
4) MM factory produces the MM measure shirt in approximately four days and sends finished shirt after the first Quality Control (QC) to MM QA center. The MM factory produces custom shirts for multiple retailers.
5) The MM shirt is sent via electric scooter to MM QA center.
6) The QA center conducts final QC and packages the product for DHL pickup.
7) The MM shirt is air shipped via DHL's network to the closest local airport distribution center.
8) The MM shirt is received and prepared for continued shipping.
9) Ground shipping to nearest airfreight distribution center.
10) Air freight receives the shirt for final ground shipping.
11) UPS ground shipping to customer.

Blank Label deviates from many MM and CT manufacturers by establishing a QA center separate

from their manufacturer. This center provides order preparation, local quality control, final packaging, and material inventory management. Many MM and CT retailers allow their manufacturers to handle inventory (most only have limited stock), but Blank Label has enough volume to justify their own inventory management for fabrics and buttons. The introduction of inventory management does not (in Blank Label's case) shift MC to a "push" based model as they only promote a limited number of fabrics on their website. The location of the QA center near the factory allows for an additional quality control point before leaving the country, thereby reducing remakes. Blank Label does not repair shirts in their markets and typically makes an entirely new shirt if a problem occurs beyond the QA center. The nearness of the QA center also allows for the use of electric scooters for everyday movement of raw materials and finished product between QA and the MM factory.

### 3.10 Blank Label Key Characteristics

General
- Online Custom Clothier or Online Tailor
- Market - 90% USA, 8-9% UK and Canada
- 100% MM dress shirts
- First custom shirt for 96% of customers.
- Even distribution for ages 25-44.

Retail Experience
- 100% through website
- 1.7 shirts per order
- 30% repeat customers
- $92 average price of shirt (price range $70-145)

Manufacturing
- Contract manufacturing based in Shanghai, China
- "Pull" based manufacturing with inventory management by QA center
- Use of hand-cut fabrics and specialization of tasks (2 pattern makers, shirt body makers, specialists for collars, placket, cuffs) embroidery (done by machine), stitching (assistance by machine).
- About 14-16 people involved in manufacturing.
- Blank Label is about 50% of their manufacturer's business.
- Fabrics come from Western China (80%) and the remainder is from Italy/Japan.
- Manufacturer produces 50-60 shirts per day

Shipping
- DHL with individual packing.
- Timetable: Fabric/Buttons (same day), Shirt production (2 days), Embroidery (1 day), Packaging and QA (1 day), shipping (2 days) – Best case is one-week turnaround.
- Shipping conducted every day (Mon - Sat).

### 3.11 MM (Blank Label) Environmental Impact

Carbon footprint (transportation) – The $CO_2$ emitted for sending one shirt from China to a customer is approximately 0.99lbs. In our study the carbon footprint is 1.32lbs, as two shirts were remade. The typically amount of $CO_2$ is approximately 1.08lbs, with an average return rate of 10%. The calculations are shown below:

MM Trip Segments

A. Fabric Mill (Chongqing) to Factory (Shanghai)
B. Factory (Shanghai) to Boston (Logan Airport)
C. Airport to Final Destination

One Shirt Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Train Freight | 896.016982 | 0.0000374292 | 0.03353716 |
| B | Air Freight | 7290.545943 | 0.0001306525 | 0.95252809 |
| C | Truck | 8.2020972 | 0.0000274333 | 0.00022501 |
| | | | | **0.99** |

***Table 3-8.*** MM one shirt scenario carbon emissions.

**Assumptions**

- *95% of fabrics come from Western China (assuming Chongqing)*
- *Assuming train freight for fabric shipping*
- *Last segment on DHL truck shipping, same travel distance as customer to retail*

Study Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Train Freight | 896.0 | 0.0000374292 | 0.03353716 |
| B | Air Freight | 7290.5 | 0.0001306525 | 0.95252809 |
| C | Truck | 8.2 | 0.0000274333 | 0.00022495 |
| | | | **Subtotal $CO_2$** | **0.98629021** |
| | | | **Carbon Penalty** | **0.32876340** |
| | | | **Total $CO_2$** | **1.32** |

***Table 3-9.*** MM study scenario carbon emissions.

**Additional Assumptions**

- *2 Remakes (website issue with fitting and shirt specification)*
- *Carbon penalty for 2 remakes = the addition of the average $CO_2$ for two shirts divided by total number of participants (0.986lbs x (2/6) participants) to the $CO_2$ total*

Typical Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Train Freight | 896.0 | 0.0000374292 | 0.03353716 |
| B | Air Freight | 7290.5 | 0.0001306525 | 0.95252809 |
| C | Truck | 8.2 | 0.0000274333 | 0.00022495 |
| | | | **Subtotal $CO_2$** | **0.98629021** |
| | | | **Carbon Penalty** | **0.09862902** |
| | | | **Total $CO_2$** | **1.08** |

***Table 3-10.*** MM typical scenario carbon emissions.

**Additional Assumptions**

- 10% of all shirts are remade
- Carbon Penalty = Additional 10% on top of existing total

Waste – Blank Label does have some excess fabric inventory (around 400 yards) which can either be resold to the fabric distributor (usually at a significant discount) or can be held and used for the following season's fabrics (Bi 2012). This is a very small percentage (less than 3%) of total yearly production. Surplus shirt inventory is sent to St. Louis, Missouri and distributed as donations. Excess fabric is made into fabric swatches that are sent to customers so that they can "touch and feel" the material to make decisions about future purchases.

Return rates – Blank Label estimates that 15% of new customers require remakes of their shirts (about 10% for all customers including new ones) (Bi 2012). Blank Label offers a free remake for any reason for first time customers and the main reasons for a remake are (in order of priority): 1) fit, 2) didn't like the shirt they designed, and 3) QA problems by the manufacturer. QA mistakes account for roughly 0.75 to 1% of all returns and are usually a result of a problem with sizing, specification, or finishing. Blank Label does not provide alterations for their markets even for small changes; therefore an entire shirt has to be remade for all returns. Like many MC shirt makers, Blank Label has considered local alterations through coupons to local tailors, but this currently does not make economic and time sense given the additional shipping and hassle for the customer.

### 3.12 CT (9Tailors) Production, Distribution, and Retail

This study depicts the production, distribution, and retail experience based on our study with 9Tailors, our CT provider for this study. 9Tailors is a Boston based CT provider, which provides style consultations for customers at their office (about 90% of their customers do this) as well as office and school (mostly business schools) consultations. For this study, we arranged for an office visit at Fidelity for six of our test subjects; thus, this scenario analyses examines a minority case for their CT model. 9Tailors typically consults about 10-15 people per office visit and conducts school visits twice a year (Harvard Business, Tuck School of Management, MIT Sloan). They will also conduct consultations in NYC for many of their student customers who have graduated. In this case, they rent space in Manhattan for consultations.

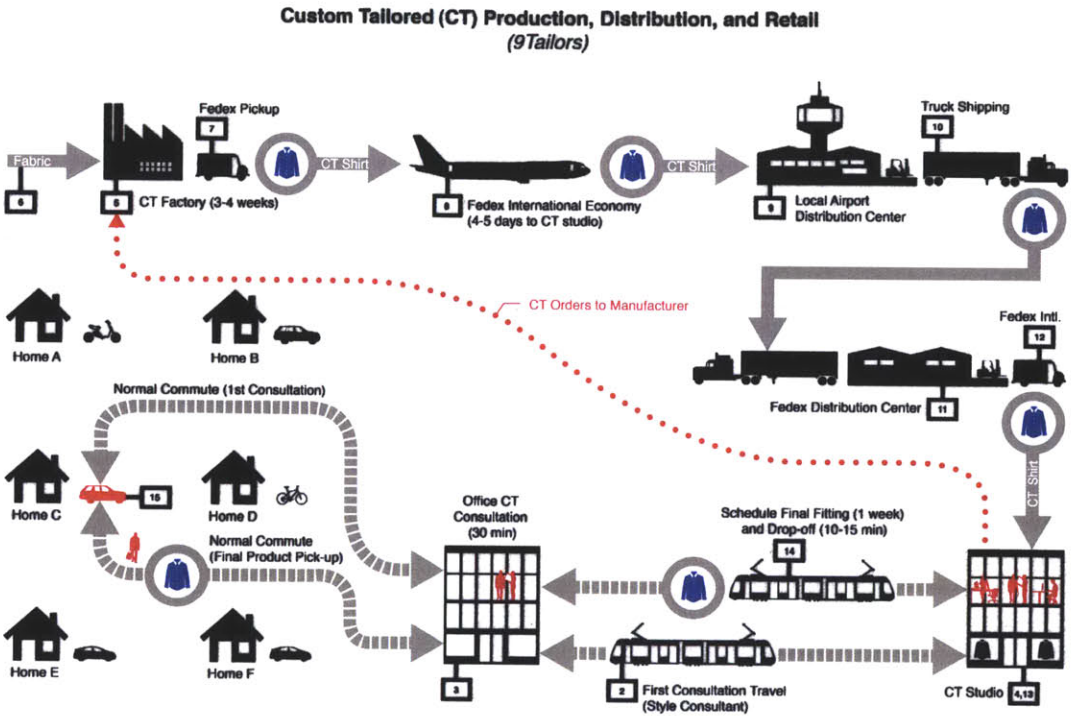



***Figure 3-6.*** CT (9Tailors) flow diagram.

Sequence of events:

1) CT customer sets up an office meeting for a design consultation with 9Tailor's style consultant. 9Tailors usually sets up office visits as part of their monthly marketing campaign, but they typically have the customer visit their offices. During an office visit 9Tailors usually arranges for multiple consultations on the same trip.
2) The style consultant will travel to the customer's office via subway or walking (if it is nearby).
3) The consultant and customer will hold a 30-minute design session, which includes selection of fabrics, shirt styles, components, and measurements.
4) Consultant will then travel back to their studios to process the order, verify specifications and send the order to their manufacturer in Hong Kong.
5) The CT factory starts the manufacturing by ordering the appropriate fabric (if it is not in stock).
6) Fabric arrives at CT factory.
7) After QC, Fedex picks up the product.
8) The product is air shipped via Fedex International Economy. This usually takes 4-5 days to arrive at 9Tailors's office.
9) CT shirt arrives at the local airport distribution center.
10) Truck shipping brings the CT shirt to Fedex's local distribution center.
11) Fedex Distribution center receives product.
12) Ground shipping brings the product their offices.
13) The CT studio arranges for the second fitting at the customer's office. This may take up to a week to coordinate schedules. 9Tailors typically requests the customer to visit them in their studios, but for this study the final fitting occurs in the customer's office.
14) Style consultant delivers CT shirt to office for final fitting.
15) Customer commutes to work and meets the style consultant for final fitting. 90% of 9Tailor's customers do not require additional changes and will receive the final product.

Unique to this study is the final fitting of the shirt. Typically 9Tailors asks the customer to visit their offices (about 90% of the time), thus necessitating an extra trip for the customer. This is usually an urban low-energy trip (walking, bicycle, or subway) as they have strategically placed their studio in the financial district. However, this provides easier scheduling (as shirts may not be manufactured at the same time to be delivered to the same office) and provides an opportunity for greater customer engagement at their design studios as well as the possibility of future sales.

### 3.13 9Tailors Key Characteristics

General

- Custom Tailor.
- Market - 100% USA, mostly local.
- CT Men's shirts (60%), CT men's suits (25%), CT shirts for women (10%), and men's accessories (5%).

Retail Experience

- 90% studio consultation, remainder are office and school visits.
- 10-15 people per office visit, schools once a month.
- Most customers walk or take subway to CT studio, CT drive to schools outside the City of Boston.
- 40% repeat customers.
- $120 average price.

Manufacturing

- Contract manufacturing based in Hong Kong, China
- "Pull" based manufacturing
- Manual process for manufacturing with use of machine for sewing. Manufacturer makes new patterns for each customer (Bespoke model).
- About 50 people involved in manufacturing.
- Manufacturer produces shirts for other CT retailers.
- Fabrics come from UK, China, Italy, Japan
- Orders emailed once a day.
- 4-5 weeks for manufacturing (including shipping)

Shipping and Fitting

- Fedex International Economy with individual packing.
- Timetable is 4-5 days for shipping, 1 week for pick-up and second fitting, 2-3 weeks for remake.
- Second fitting takes 10-15 minutes, 90% don't require additional alterations.

### 3.14 CT (9Tailors) Environmental Impact

Carbon footprint (transportation) – The $CO_2$ emitted from shipping a shirt from Hong Kong to Boston including airfreight is equal to 2.79lbs. The amount of $CO_2$ in our study per shirt was 1.89lbs. The ability to service six participants on the first trip saves the carbon difference. The $CO_2$ for a typical scenario is slightly higher at 2.16lbs. In this scenario, 9Tailors benefits from a higher number of clients per visit, but this advantage is quickly erased by the remakes (5%) and alterations (4%).

CT (9Tailors) Trip Segments

A. Fabric Mill (Italy) to Factory (Hong Kong)
B. Factory to Fedex Distribution Center (Northborough)
C. Distribution Center to 9Tailors Offices
D. 9Tailors Offices to Fidelity Offices (1st Consultation)
E. 9Tailors Offices to Fidelity Offices (Final Delivery)

One Shirt Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Container Ship | 5803.60514 | 0.0000143931 | 0.08353177 |
| B | Air Freight | 7290.545943 | 0.0001306525 | 0.95252809 |
| C | Truck (16 Ton) | 29.825808 | 0.0000274333 | 0.00081822 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| D | Train (Subway) | 2.5 | 0.3499988573 | 0.87499714 |
| E | Train (Subway) | 2.5 | 0.3499988573 | 0.87499714 |
| | | | | **2.79** |

***Table 3-11.*** CT (9Tailors) one shirt scenario carbon emissions.

**Assumptions**

- *9Tailors fabrics come from Italy, UK, China, and Japan (we assume Italy, on a container ship for this calculation)*
- *Consultation trip is very short distances from their offices and are either by subway or walking (we assume subway in this study)*

Study Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Container Ship | 5803.6 | 0.0000143931 | 0.08353177 |
| B | Air Freight | 7290.5 | 0.0001306525 | 0.95252809 |
| C | Truck (16 Ton) | 29.8 | 0.0000274333 | 0.00081822 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| D | Train (Subway) | 2.5 | 0.3499988573 | 0.29166571 |
| E | Train (Subway) | 2.5 | 0.3499988573 | 0.29166571 |
| | | | **Subtotal $CO_2$** | **1.62020951** |
| | | | **Carbon Penalty** | **0.27003492** |
| | | | **Total $CO_2$** | **1.89** |

***Table 3-12.*** CT (9Tailors) study scenario carbon emissions.

**Additional Assumptions**

- *6 Participants were consulted on first consultation and second fitting*
- *1 Remake (wrong pattern on fabric)*
- *Carbon penalty for 1 remake = add the average $CO_2$ for one shirt divided by number of participants (1.62lbs / 6 participants) to the carbon emissions subtotal*

Typical Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Container Ship | 5803.6 | 0.0000143931 | 0.08353177 |
| B | Air Freight | 7290.5 | 0.0001306525 | 0.95252809 |
| C | Truck (16 Ton) | 29.8 | 0.0000274333 | 0.00081822 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| D | Train (Subway) | 2.5 | 0.3499988573 | 0.06999977 |
| E | Train (Subway) | 2.5 | 0.3499988573 | 0.87499714 |
| | | | **Subtotal $CO_2$** | **1.98187499** |
| | | | **Carbon Penalty (Remakes)** | **0.09909375** |
| | | | **Carbon Penalty (Alterations)** | **0.079275** |
| | | | **Total $CO_2$** | **2.16** |

***Table 3-13.*** CT (9Tailors) typical scenario carbon emissions.

**Additional Assumptions**

- *90% of 9Tailors customers come to their studios in downtown Boston*
- *Majority of customers travel by subway or walk to 9Tailors studio for return*
- *Assume trips originate from work to 9Tailors offices (i.e., short distance trips)*
- *9Tailors averages 10-15 people per office consultation (we take the average of 12.5)*
- *5% of all shirts are remade*
- *Carbon penalty for remakes = additional 5% on top of existing total minus travel for 1st consultation*
- *4% are altered*
- *Carbon penalty for remakes = additional 4% of all (consultant trips for second fitting)*

Waste – The exact percentage of fabric waste is unknown. However, they recycle as much as possible. 9Tailors makes pocket squares of out excess material, but this is only a fraction of the total material. Since they don't ship orders and have their own retail location, they don't need to make fabric swatches (like Blank Label).

Return rates – About 5% of 9Tailors shirts have to be completely remade. This includes errors from the manufacturer as well as from the client. About 4% can be corrected at their studio location in Boston and about 1% of their shirts are refunded. Fit is the number one reason for returns. However, unique or special designs that were not reproducible were also another (secondary) reason.

### 3.15 CT (Dillon Road) Production, Distribution, and Retail

Dillon Road is a New York City-based CT that conducts office consultations almost exclusively. They employ style consultants throughout the country that conduct office visits. Style consultants arrange for office visits (3-4 people per visit) for the first consultation and then manufacture the shirts in Bangkok. Shirts are then shipped to their offices via DHL and then resent via UPS ground to their respective consultants throughout the country for final delivery and fitting. The graphic below shows this process:

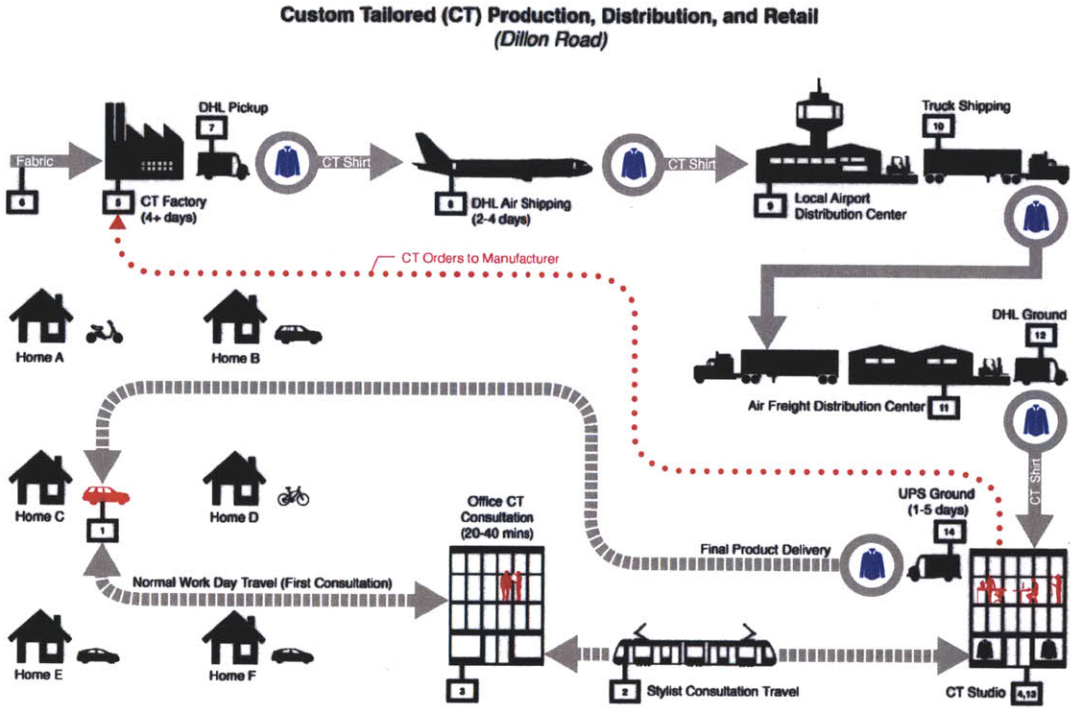



***Figure 3-7.*** CT (Dillon Road) flow diagram.

Sequence of events:

1) Same as 9Tailors up to step 13.
13) Instead of setting up a second fitting meeting, Dillon Road sends the CT shirt via UPS ground to the customer. For larger orders (2+ shirts), Dillon Road makes one for first for sizing, and then produces additional shirts after confirming the fit.

### 3.16 Dillon Road Key Characteristics

General

- Custom Tailor
- Market - 100% USA
- Men's CT shirts (95%) and men's accessories (5%).

Retail Experience

- 100% office visits (approximately 3-4 per month).
- 3 people per office visit (25-45 minutes per customer).
- CT consultants travel by subway in NYC, car in most other locations. Travel time is less than 30 minutes.
- $139 average price

Manufacturing

- Manufacturing partner is based in Bangkok, Thailand.
- "Pull" based manufacturing with some minor push stock.
- Manual process for manufacturing with use of machine for sewing.

- Manufacturer makes new patterns for each customer (Bespoke model).
- Dillon road produces about 15 shirts/week.
- Fabrics come from China (95%) through Hong Kong distributor.
- Orders emailed once a day.
- 3-4 weeks for manufacturing and shipping.

Shipping and fitting

- DHL (2-4 days) to NYC office for collection and then UPS ground (1-5 days) for countrywide style consultants.
- Nearly 100% of customers have a second fitting.
- Second fitting takes 10-15 minutes, 90% don't require additional alterations.

### 3.17 CT (Dillon Road) Environmental Impact

Carbon footprint (transportation) – The carbon footprint for delivering one shirt to a customer is 2.92lbs for Dillon Road. An unusually high count of 36.45lbs of $CO_2$ for the study is due to the lack of a style consultant in the Boston area. The style consultant for Dillon Road took a bus from NYC during a weekend trip to consult for this project, thus dramatically increasing the carbon count. In a typical scenario, Dillon Road within the NYC metropolitan area will emit 2.25lbs of carbon with roughly a 10% remake rate. Since Dillon Road does serve the rest of the country, this study also examines the carbon footprint for a scenario outside of NYC. The carbon emitted is the highest in the study for a typical scenario at 23.81lbs. This is because the style consultant in other cities typically drives an automobile for two round trips (first consultation and final fitting), thus driving up the carbon count. All of Dillon Road's product is first shipped to their offices in NYC and is then shipped via UPS to their consultants throughout the country, therefore adding to the carbon count. Carbon calculations are shown below:

CT (Dillon Road) Trip Segments (Typical)

A. Fabric Mill (Chongqing) to Fabric Distributor (HK)
B. Fabric Distributor (HK) to Factory (Bangkok)
C. Factory to CT offices (NYC)
D. CT Offices to Final Office (1st Consultation) – Round Trip
E. CT Offices to Final Office (2nd Consultation) – Round Trip

One Shirt Scenario (if customer is in NYC)

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Train Freight | 681.643987 | 0.0000374292 | 0.02551336 |
| B | Container Ship | 1076.214572 | 0.0000143931 | 0.01549004 |
| C | Air Freight | 8658.183514 | 0.0001306525 | 1.13121337 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| D | Train (Subway) | 2.5 | 0.3499988573 | 0.87499714 |
| E | Train (Subway) | 2.5 | 0.3499988573 | 0.87499714 |
| | | | | **2.92** |

***Table 3-14.*** CT (Dillon Road) one shirt scenario carbon emissions.

**Assumptions**

- *95% of fabrics come from China (assuming Chongqing)*
- *Consultation trip within NYC is very short distances from their offices and are either by subway or walking (we assume subway in this study*

CT (Dillon Road) Trip Segments (Study Scenario) – For this study, the style consultant from Dillon Road makes just one visit to TR's offices. However, he does not travel back for a second fitting. The finish product is then shipped from NYC after being shipped from Bangkok directly to the study participant in Boston.

A. Fabric Mill (Chongqing) to Fabric Distributor (HK)
B. Fabric Distributor (HK) to Factory (Bangkok)
C. Factory to CT offices (NYC)
D. CT Offices to Boston Distribution Center
E. Boston Distribution Center to Participant Office
F. Style Consultant to Final Office (1st Consultation) - Round Trip
G. Style Consultant to Final Office (2nd Trip) - Round Trip

Study Scenario

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Train Freight | 681.6 | 0.0000374292 | 0.02551336 |
| B | Container Ship | 1076.2 | 0.0000143931 | 0.01549004 |
| C | Air Freight | 8658.2 | 0.0001306525 | 1.13121337 |
| D | UPS Ground | 200.0 | 0.0000274333 | 0.00548666 |
| E | Truck | 5.6 | 0.0000274333 | 0.00015363 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| F | Bus | 200.0 | 0.17637 | 35.27392000 |
| G | No Trip | n/a | n/a | n/a |
| | | | | **36.45** |

***Table 3-15.*** CT (Dillon Road) study scenario carbon emissions.

**Assumptions**

- *No remakes, but fabric was unavailable for one participant causing a delay of 2 weeks and the selection of alternative fabric*

Typical Scenario (within NYC)

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Train Freight | 681.6 | 0.0000374292 | 0.02551336 |
| B | Container Ship | 1076.2 | 0.0000143931 | 0.01549004 |
| C | Air Freight | 8658.2 | 0.0001306525 | 1.13121337 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| D | Subway | 2.5 | 0.35000 | 0.29166571 |
| E | Subway | 2.5 | 0.35000 | 0.29166571 |
| | | | **Subtotal $CO_2$** | **2.04721391** |

| | |
|---|---|
| **Carbon Penalty** | **0.20472139** |
| **Total $CO_2$** | **2.25** |

***Table 3-16.*** CT (Dillon Road) typical NYC scenario carbon emissions.

**Assumptions**

- *Dillon Road averages about 3 people per office consultation*
- *10% remakes*
- *Carbon penalty = additional 10% of all $CO_2$ minus first consultation round trip*

Typical Scenario outside of NYC (Los Angeles Case)

| Trip Segment | Mode | Distance | $CO_2$ per shirt-miles (lbs) | Total $CO_2$ (lbs) |
|---|---|---|---|---|
| A | Train Freight | 681.6 | 0.000037429157 | 0.02551336 |
| B | Container Ship | 1076.2 | 0.000014393082 | 0.01549004 |
| C | Air Freight | 8658.2 | 0.000130652505 | 1.13121337 |
| D | UPS Ground | 3000.0 | 0.000027433299 | 0.08229990 |
| E | Truck | 5.6 | 0.000027433299 | 0.00015342 |
| | | | | |
| **Trip Segment** | **Mode** | **Distance** | **$CO_2$ per passenger-mile (lbs)** | **Total $CO_2$ (lbs)** |
| F | Passenger car | 16.4 | 0.9325542600 | 5.09796329 |
| G | Passenger car | 16.4 | 0.9325542600 | 15.29388986 |
| | | | **Subtotal $CO_2$** | **21.64652324** |
| | | | **Carbon Penalty** | **2.16465232** |
| | | | **Total $CO_2$** | **23.81** |

***Table 3-17.*** CT (Dillon Road) typical external scenario carbon emissions.

**Assumptions**

- *Dillon Road air ships all shirts to NYC office, and then uses UPS to send to their network of style consultants across the country.*
- *This calculation examines the $CO_2$ for a customer in LA with a style consultant that drives to an office to meet a customer*
- *No remakes, but fabric was unavailable for one participant causing a delay of 2 weeks and the selection of alternative fabric*
- *Dillon Road averages about 3 people per office consultation*
- *10% remakes*
- *Carbon penalty = additional 10% of all $CO_2$ minus first consultation round trip*

Waste – Data on waste was not available from Dillon Road.

Return rates – Approximately 10% of shirts are either returned or altered. Just 2% of their customers return for a full refund. The reasons for return are primarily due to unhappiness with fabric selection. Dillon Road has a 100% Money Back Guarantee (MBG) policy.

### 3.18 Conclusions Carbon Footprint Impact (Transportation)

MP online outperforms all other models significantly. However, the $CO_2$ performance of all MC providers exceeds MP offline significantly due to emissions from customers using their private automobiles. The carbon footprint computed in this study for truck delivery outperforming passenger vehicle pick-up by the consumer as multiple times better validates previous studies by Edwards et al. (2009) who reported 24X improvement of home delivery by truck vs. trips by the consumer. Emissions from container shipping from Asia to markets in the east cost of the United

States was 0.19lbs of $CO_2$ versus the 17.5lbs created by the consumer in a passenger car for a single purpose trip. An alterative comparison for this length of trip is to compute container shipping from Asia to the west coast of the US and then add train or truck shipping across the county. This yields a $CO_2$ emissions equal to approximately 0.33lbs (truck) or 0.26lbs (train), which is comparable in terms of magnitude. Carbon emissions from airfreight (0.95 lbs) also outperformed passenger car pick-up by over 18X improvement. It becomes clear that moving goods rather than people, even over vast distances, is a much better environmental strategy for delivering products to the end-user.

The following tables rank each production model for the three scenarios examined in this ethnographic case study. It is clear that MP online performs the best, even with high percentages of returns, whereas MP offline suffers from carbon emissions caused by the consumer. MC models like MM and CT are sandwiched between these the two MP models with MM outperforming CT by more than 30% in the typical scenario. Both MC models have approximately the same percentage of returns (~10%). However, 9Tailors has invested in local alterations, which reduces returns by 4%. Many MC manufacturers are still considering the economic trade-offs of local alterations (and even local manufacture), but the current model for MM, which requires zero customer movement, is difficult to match even with local corrections to returns.

| 1 Shirt Scenario | | |
|---|---|---|
| **Rankings** | **Production Model** | **$CO_2$ (lbs)** |
| 1 | Mass Production (Online) | 0.20 |
| 2 | Made-to-Measure (Blank Label) | 0.99 |
| 3 | Custom Tailored (9Tailors) | 2.79 |
| 4 | Custom Tailored (Dillon Road) in NYC | 2.92 |
| 5 | Mass Production (Offline) | 15.49 |
| 6 | Custom Tailored (Dillon Road) Typical LA Scenario | 31.84 |

***Table 3-18.*** $CO_2$ ranking (one shirt scenario).

| Study Scenario | | |
|---|---|---|
| **Rankings** | **Production Model** | **$CO_2$ (lbs)** |
| 1 | Mass Production (Online) | 0.20 |
| 2 | Made-to-Measure (Blank Label) | 1.32 |
| 3 | Custom Tailored (9Tailors) | 1.89 |
| 4* | Custom Tailored (Dillon Road) in Boston | 2.57 |
| 5 | Mass Production (Offline) | 17.73 |
| 6 | Custom Tailored (Dillon Road) Study Scenario | 36.45 |

***Table 3-19.*** $CO_2$ ranking (study scenario).

**Calculation assuming Dillon Road has an office in Boston.*

| Typical Scenario | | |
|---|---|---|
| **Rankings** | **Production Model** | **$CO_2$ (lbs)** |
| 1 | Mass Production (Online) | 0.28 |
| 2 | Made-to-Measure (Blank Label) | 1.08 |
| 3 | Custom Tailored (9Tailors) | 2.16 |
| 4 | Custom Tailored (Dillon Road) if customer is in NYC | 2.25 |

| | | |
|---|---|---|
| 5 | Mass Production (Offline) | 21.28 |
| 6 | Custom Tailored (Dillon Road) Typical LA Scenario | 23.81 |

***Table 3-20.*** $CO_2$ ranking (typical scenario).

One limitation of this study is that an analysis of total carbon footprint of the distribution network (distribution centers, retail locations) is not considered due to lack of data on MP operations. Even with good data from MP retailers, this would be a complex calculation because of the embodied energy in the buildings. Energy use during operations, as well as a carbon accounting for employees should be included. A follow up study should explore these issues.

### 3.19 Ethnographic Conclusions

Manufacturing Trade-offs

In general, manufacturing data was difficult to acquire for MP (offline and online), so comparisons are fairly superficial. A full analysis of the waste created in the manufacturing process would require the cooperation of both MC and MP manufacturers. This is out of the scope of this study, but we can examine the degree of automation and scale of MC vs. MP manufacturers. All three MC manufacturers employed mostly hand-cutting of fabrics in combination with semi-automation (sewing and stitching machines) by human operators for the making of each shirt. All three MC manufacturers produced bespoke shirts, which require new patterns made for each customer. This pattern is then saved for later use for repeat orders. Most of the MC manufacturers employed specialists to produce the shirts, including specialists that make only components such as cuffs, collars, plackets, embroidery for monograms, etc. While other operators only produce shirt bodies or hand cut fabric. A shirt is moved down the line to each specialist. The use of laser cutting equipment is cost prohibitive at the current MC scale of operation, but could enhance fabric utilization by material optimization techniques.

Most of the MC retailers employed small-scale contract manufacturers capable of producing 50-100 shirts per day, thus operations are unlikely to dwarf the scale of MP manufacturing operations. This does allow for agility and unique QC measures. Blank Label has established their own inventory management and in-country QC separate from their manufacturer, which directly reduces QA errors to less than 1%.

Distribution Trade-offs

An examination of the carbon emissions just from transportation yields some key insights particularly with respect to online vs. offline, people vs. goods, slow vs. fast shipping, and the interdependences between them.

1) Slow vs. Fast Shipping – Slow shipping typically takes up to 3-4 months on a container ship, whereas fast shipping can be as quick as two days. Aside from the cost differences the greatest difference is in carbon emissions. The $CO_2$ emitted by an airplane is nearly 5X more compared to a container ship given an equivalent product being shipped. Fast shipping employed by MC manufacturers is the largest portion of all carbon emissions. It is clear that most environmentally friendly way to ship (if you have to ship long distances) is by container ship.

2) Moving Customer /Consultants vs. Goods – The movement of people dramatically affects carbon emissions if we count them in the distribution process, even if it is for short distances. The $CO_2$ emitted by a customer driving to a shopping mall in a personal

private gasoline powered automobile (8.2 miles, one-way, 21 MPG) is more than 18X the carbon emissions of a container ship carrying one dress shirt from China to the East Coast of the United States. MC retailers that utilize style consultants also emit $CO_2$ but this is minimized by walking or subway travel in urban areas. We can also discount the commute by customers to their office since they are going to work anyway. It is also clear from an environmental point of view; eliminating or reducing human travel dramatically reduces emissions.

3) Online vs. Offline – The best performers in the $CO_2$ contest are almost always online retailers. Blank Label (online MM) emitted the least amount of $CO_2$ for MC retailers. In the typical scenario, Blank Label emitted approximately 1.08 lbs of $CO_2$ for each shirt, vs. 2.16 lbs for 9Tailors. Dillon Road emitted a similar amount of $CO_2$ (2.25 lbs) to 9Tailors if the bus trip from NYC to Boston is subtracted from the total. It is fair to assume this because their style consultants will normally travel much shorter distances unless they use an automobile (in that case they are near to Blank Label's carbon emissions). In the extreme case, Dillon Road emitted 36.45 lbs of $CO_2$ due to the very long bus ride taken by their style consultant.

# Chapter 4

# Quantitative Survey of Shirt Usage and Ownership Patterns

## 4.1 Survey Goals

The General Survey broadly examined dress shirt ownership, wearing behavior, use patterns, purchase patterns (including mode of travel), average purchase price, cleaning/maintenance behavior, return rate (and reasons why), and basic demographics. This is the first of a series of surveys conducted as part of this study. A second set of surveys will be given to the 18 participants in the shirt acquisition and tracking phase of the study.

788 people responded to this survey (686 men, 102 women). The groups surveyed included the MIT Community (171), 9Tailors (62), MCPC 2011 Conference Attendees (58), MIT Smart Customization Group (58), Dillon Road (38), MIT Technology Review (28), Fidelity (23), London School of Economics (12), and physical flyers (4). However, this chapter will only focus on the 267 men that responded through our "SurveyMonkey Audience Collector Link" – a service provided by SurveyMonkey to collect responses from the general public throughout the country. This crop of responses should provide the most unbiased set of demographics for our analysis. The remainder of the 788 respondents came from the MIT community, Mass Customization conference attendees, and the companies recruited for this study were excluded from the analysis for this chapter. The survey also assisted in filtering potential candidates for the shirt

acquisition and tracking stages of this study. The surveys by MIT Technology and Fidelity allow for the comparison of answers in the general survey to later surveys during the acquisition and tracking stage.

Surveys responses from the MC providers (9Tailors, Dillon Road, and Blank Label) allows for the analysis of consumers that have already purchased a customized shirt. This also allows us to compare their behavior to that of the general public (most of whom do not own any MC shirts).

### 4.2 Thesis Time Line (Chapter 4)

| Chapter 3 | **Chapter 4** | Chapter 5 | Chapter 6 | Chapter 7 |
|---|---|---|---|---|
| Environmental Impact Analysis of MP and MC | **Quantitative Survey of Shirt Usage and Ownership Patterns** | Experiment I: Shirt Acquisition and Follow-up Survey | Experiment II: Shirt Tracking and Use Patterns | Conclusion |
| Desk Research | 750 Respondents (276 used in analysis) | 18 participants | 18 participants | All Respondents and Participants |
| Interviews with MC and MP shirt makers | Survey of Shirt Owners of: MP and MC shirts | Acquisition of new shirts: 8 Made-to-Measure (MM), 10 Custom Tailored (CT), and 18 MP | Shirt Cataloging and Shirt Tracking (60 days of shirt data) | Data Visualization and Analysis |
| Oct 15 (2009)-Aug 31 | Jun 15 - Dec 22 | Acquisition + Survey (Feb 16-Mar 16), Design of Tracking System (Oct 15-May 7) | Cataloging (Apr 13-23), Tracking (May 7-Aug 31) | Aug 1-31 |
| 2009 to 2012 | 2011 | 2012 | 2012 | 2012 |

***Table 4-1.*** Thesis time line (Chapter 4).

### 4.3 Design of the Survey

The survey in SurveyMonkey was designed to be finished between 10-15 minutes and was open to both males and females. The female section of the survey is significantly shorter to cover the characteristics of their men's shirt purchasing behavior and to solicit more male participants. After some basic questions on age, sex, number of shirts in their wardrobe and wearing patterns, respondents were divided into the following shirt ownership categories:

1) Only Standardized Shirts
2) Only Custom Tailored Shirts
3) Only Made to Measure Shirts
4) Only Standardized and Custom Tailored Shirts
5) Only Standardized and Made to Measure Shirts
6) Only Custom Tailored and Made to Measure Shirts

7) All three types

Respondents then answered questions within their category with respect to the following areas:

1) Reasons for purchasing their category of shirts
2) Important characteristics and features of their shirts
3) Customization preferences (if any)
4) Estimated price typically paid
5) Where, how, and why of purchasing behavior
6) Travel distance
7) Shirt utilization
8) Interaction with sales person, website, or style consultant
9) Cleaning method and maintenance routine
10) Returns and reasons for returning purchases.

Limitations of General Survey

One limitation of the survey is that the sample size could be much bigger than 276 male respondents. A larger budget and more time would certainly increase this size, but at this scale we can discern particular behaviors, especially for the MP shirt market. Approximately 24.3% (50/243) of respondents own at least one MC type of shirt (CT, MM, or both) providing a reasonable data set to make comparisons between MC and MP characteristics in the aggregate. However, the data set is too limited to make comparisons between MC categories. For example, only 1.2% (3/243) owned only CT shirts, while 0.8% (2/243) owned only MM shirts, and 7.0% (17/16) owned only MP and CT shirts, thus making it impossible to draw conclusions between MC groups. Finally, 18 of the 267 (6.5%) respondents have worked professionally (either academically or in industry) within the mass customization business, research group, or consultancy, thus their responses should be accounted for in the results.

### 4.4 General and Emerging Trends

Basic Demographics

The mean age of the 267 respondents was 45.2 years old. The largest age group was between 50-59 years of age (30.3%) followed by 40-50 (21.1%) and then 30-39 (19.1%). The chart (Figure 4-1) below shows the make up of the entire field.

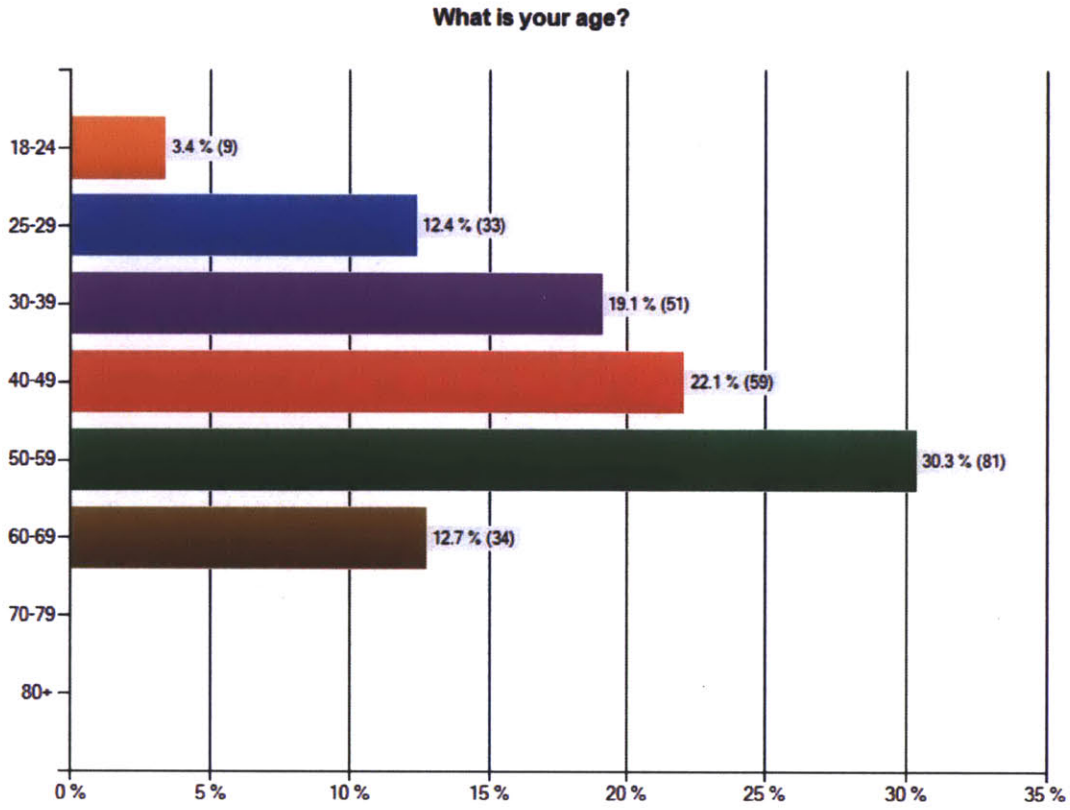



***Figure 4-1.*** Age demographics.

Shirt Usage

Most men in the study wore dress shirts between four and five days a week at 45% (111/244) The second most was one to three days a week at 26.6% (65/244). If we subtract the men that wear only occasionally (one to ten times a year or one to three times a month) then the top two categories equals 71.6% of the entire field (see Figure 4-2). The average number of days dress shirts are worn in this study is 3.57 days/week.

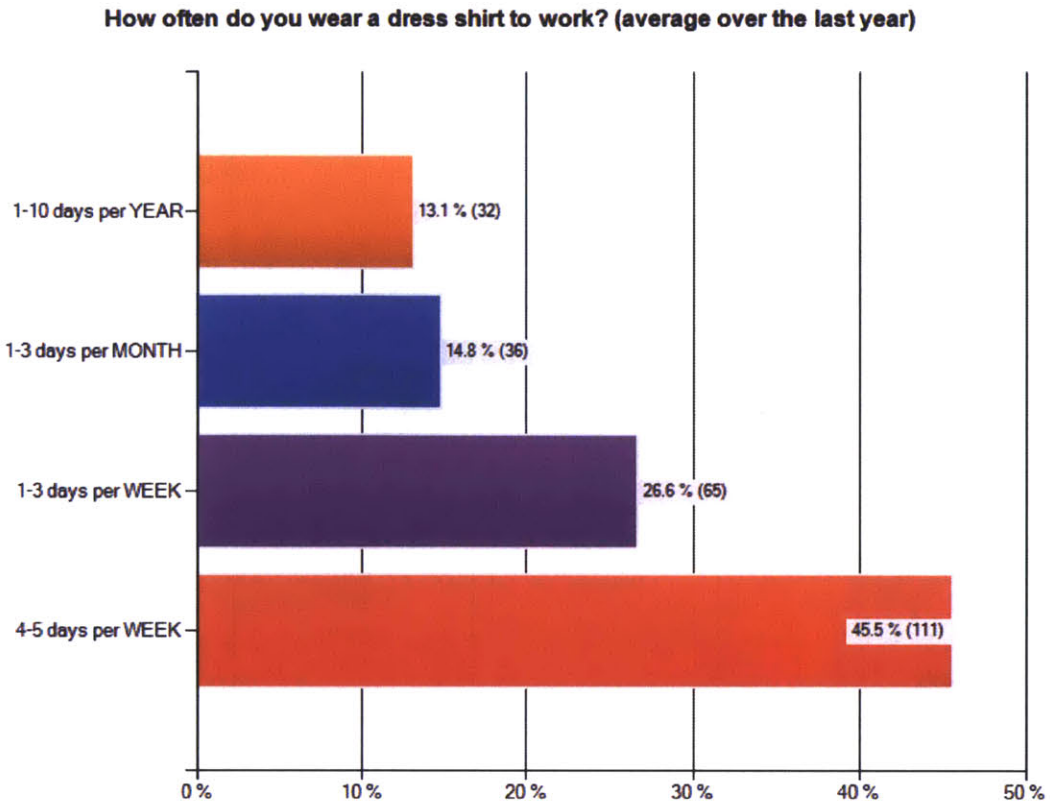



***Figure 4-2.*** Shirt wearing frequency.

Total Number of Shirts

The top two shirt ownership rates were 1-9 (33.5%) and 10-19 (35.7%). The mean number of shirts for our study was 14.2 shirts. Figure 4-3 below provides a breakdown of all shirts reported by respondents.

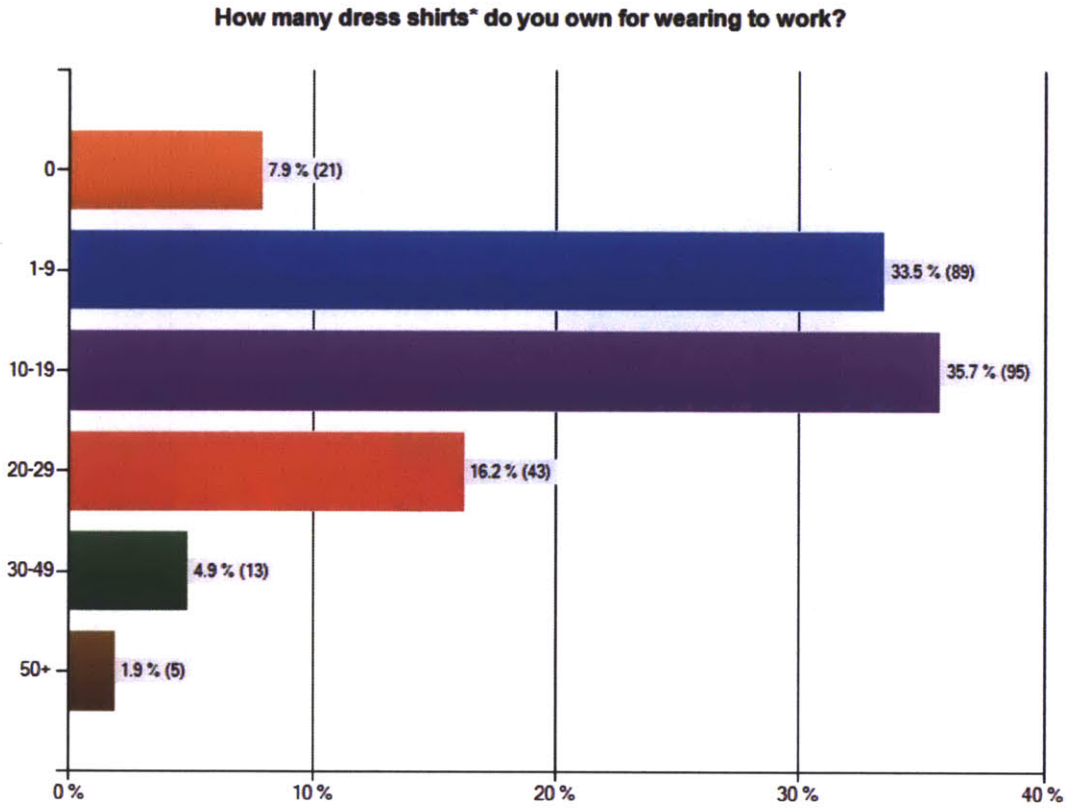



***Figure 4-3.*** Number of dress shirts for work.

Wearing Frequency

55.7% (136/244) do not wear all of their shirts and 33.2% (81/244) of respondents wear half or less of their shirts. Figure 4-4, below,

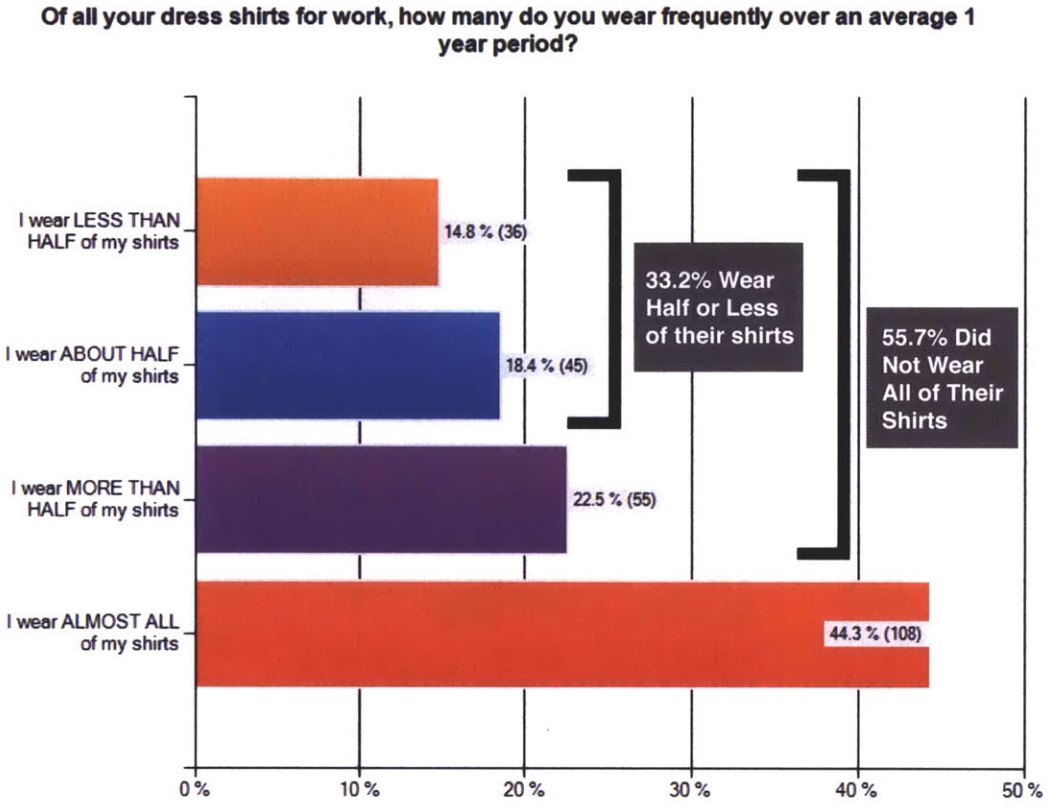



***Figure 4-4.*** Shirt wearing frequency.

Reasons for Not Wearing

This question allowed respondents to select all the reasons why they did not wear their MP shirts. The functional reasons were the top causes of subjects not wearing certain dress shirts. They included the shirt being worn out at 39.3% (96/244) and the shirt not fitting 38.5% (94/244). However, shirts that were out of style, forgotten about, and "other" were also significant factors. The list of other factors included: 1) newer shirts fit and look better, 2) office culture being more lax, 3) difficult to iron, 4) new and still un-opened, 5) too many choices, 6) Shirts that need cuff links get worn less, and 7) requires ironing/pressing. Figure 4-5, below, tabulates the reasons why respondents do not wear their shirts:

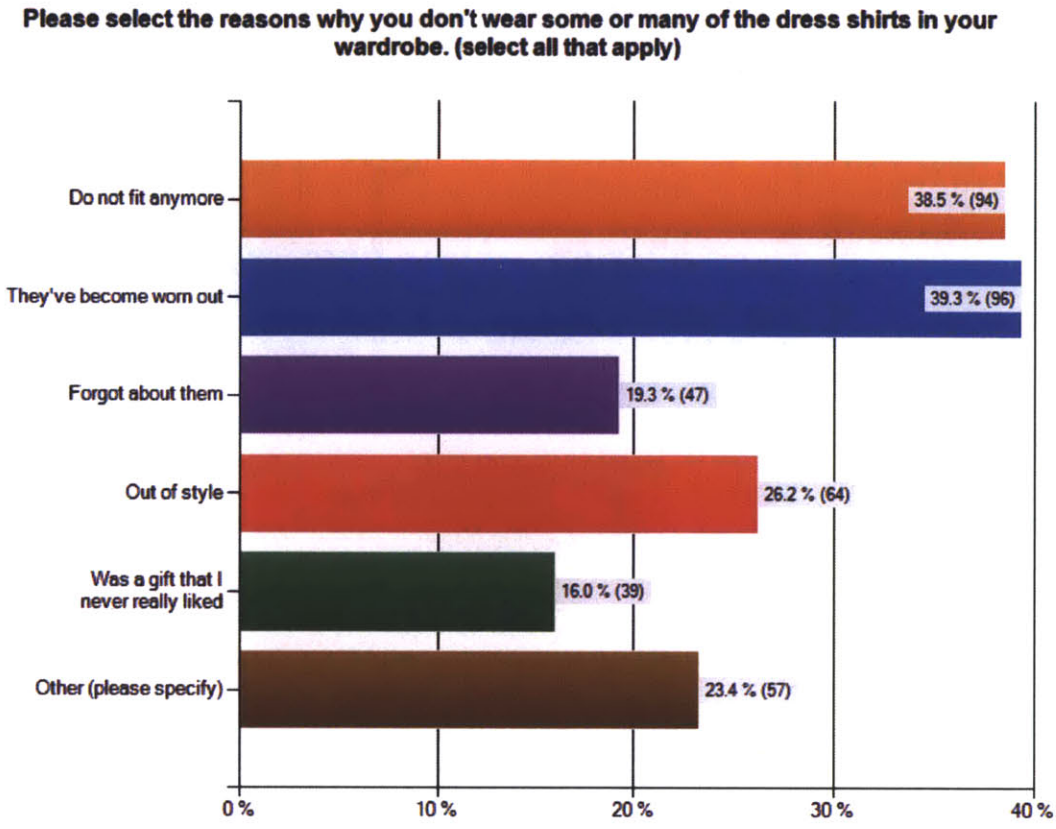



***Figure 4-5.*** Reasons why shirts are not worn.

Shirt Ownership Breakdown

The bar chart below (Figure 4-6) describes the shirt type ownership breakdown. The majority of shirts are MP shirts at 75.7% (184/243), whereas those that only had either MM, CT, or both shirts was extremely low at 3.2% (8/243). The percentage of respondents with standard and one type of MC shirt was equal to 13.6% (33/243). It is likely that these subjects only have one MC shirt. About 7.4% (18/243) of respondents had all three types.

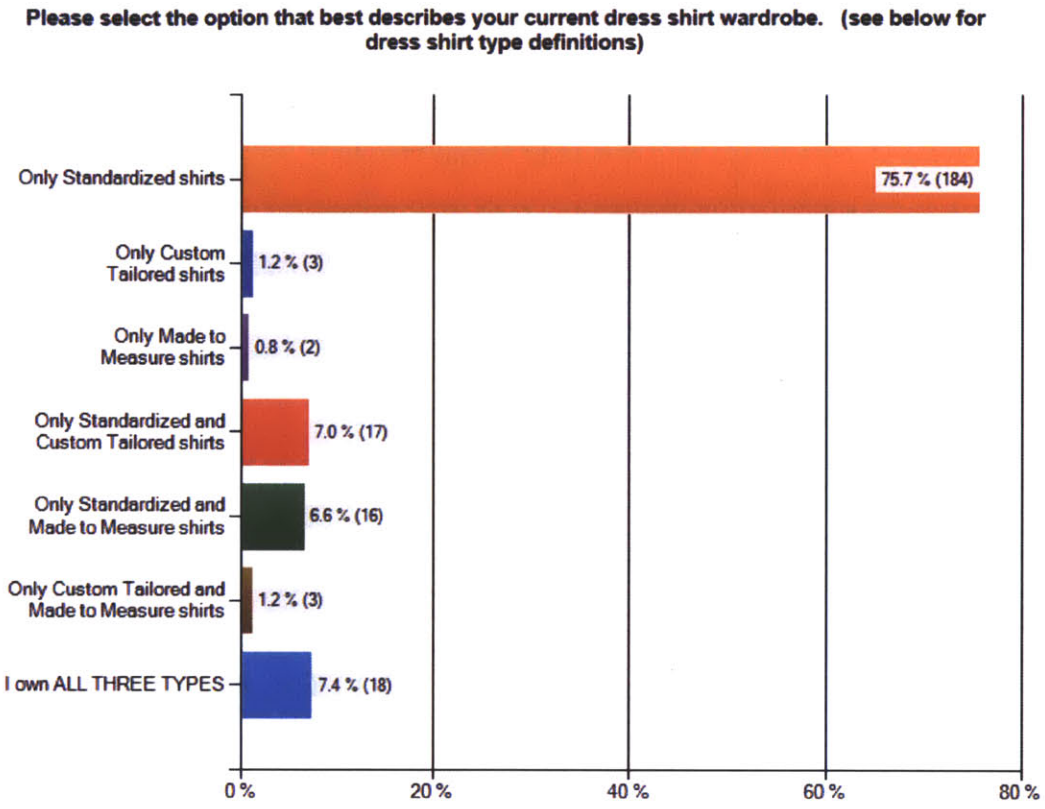



***Figure 4-6.*** General survey shirt ownership split.

Reasons Why Not to Own a CT or MM Shirt

The top reason why respondents did not own a CT shirt was the perception that custom shirts are too expensive. This was true for both CT at 73.6% (134/182) and MM at 45.1% (82/182) shirts. While the second reason why respondents did not on CT shirts was the time spent with a tailor at 26.9% (49/182), whereas the second highest reason for MM shirts was that respondents did not know they existed (i.e., "never heard of made-to-measure shirts"). This was 41.2% (75/182) of respondents. Figures 4-7 and 4-8 show the reasons why respondents did not own a CT or MM shirt.

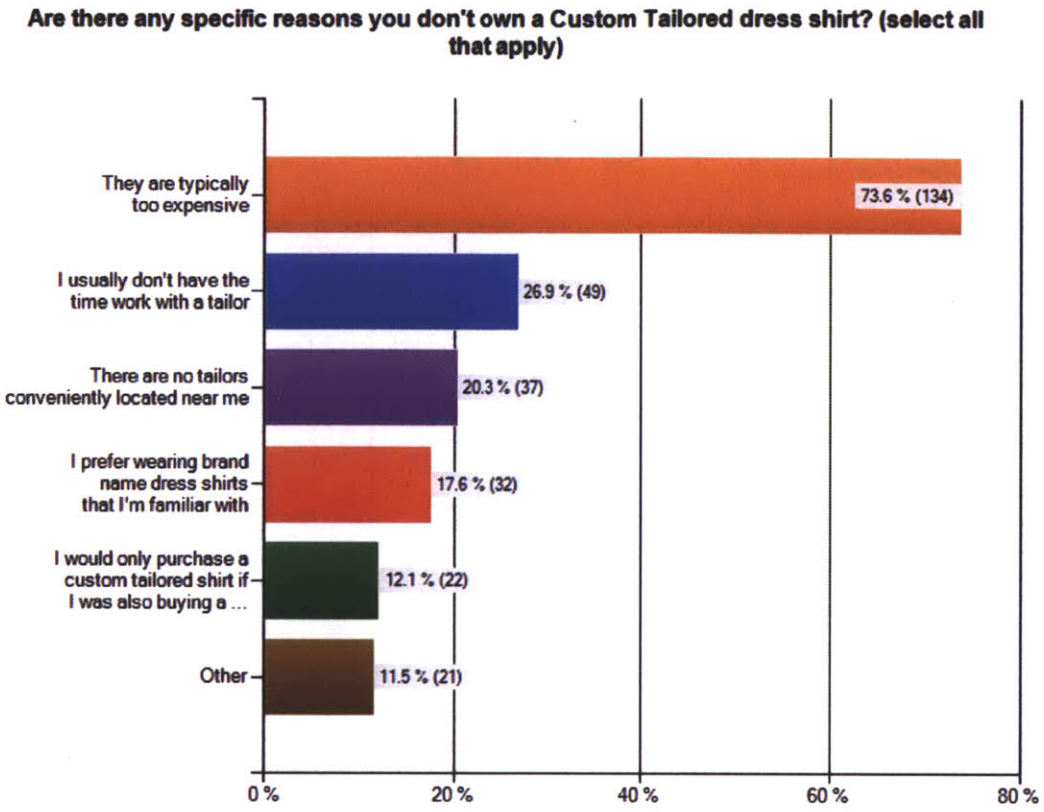



***Figure 4-7.*** Reasons not to own a CT shirt.

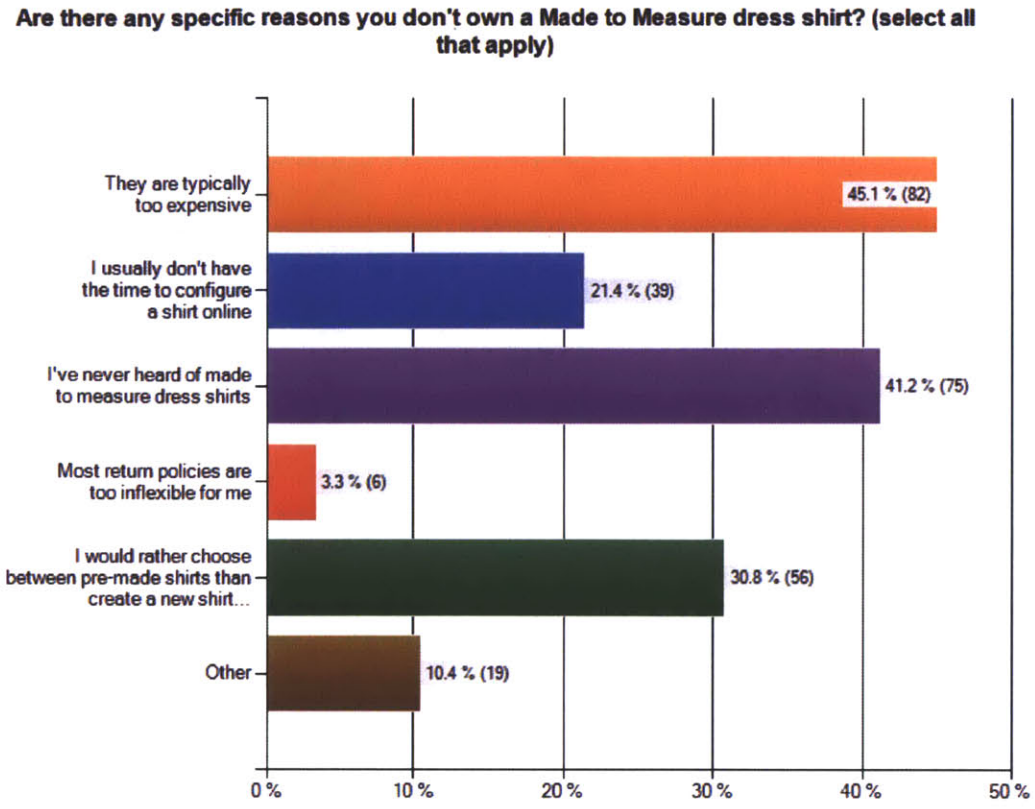



***Figure 4-8.*** Reasons not to own a MM shirt.

Average Price of Shirts

MP Shirts – Most shirts were priced between $20-39 at 55.9% (99/177) and shirts between $40-59 at 21.5% (38/177) were the second highest typical price (Figure 4-9). The average price of a dress shirt in this study is $39.39.

CT Shirts – The average cost of a CT shirt in our study was $86.16. However, the sample size is very small at three respondents.

MM Shirts – The average cost of a MM shirt was $39.50, but there were only two respondents.

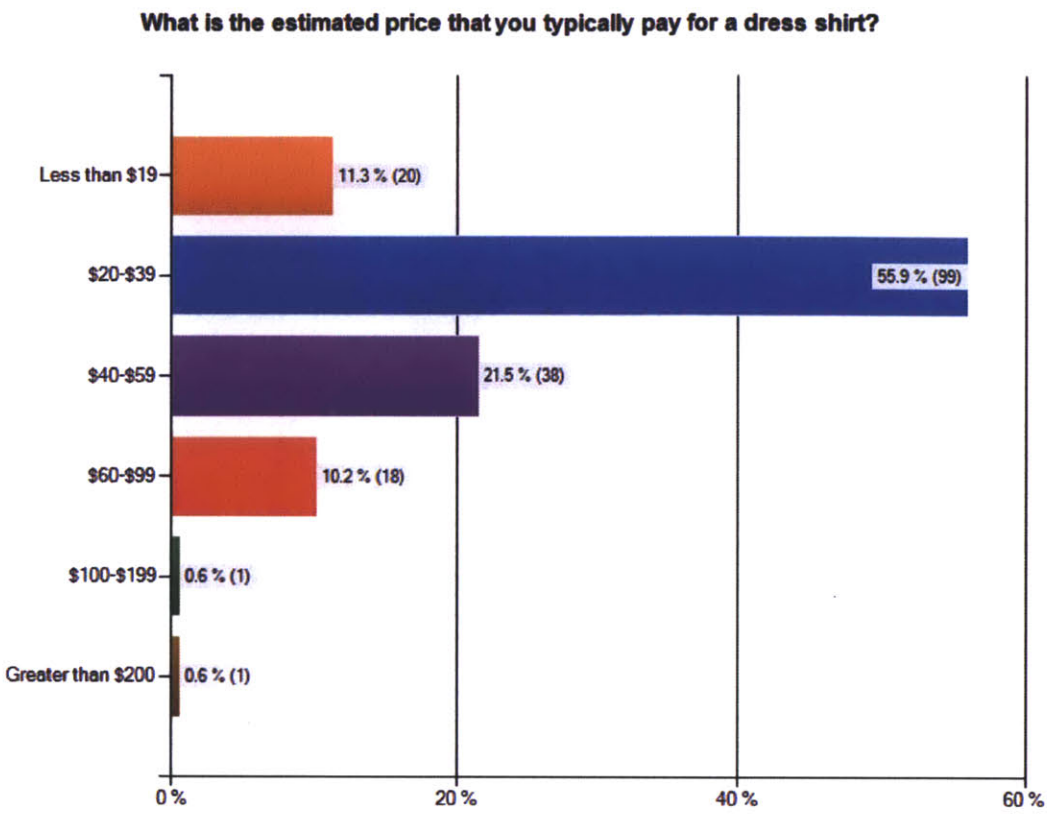



***Figure 4-9.*** MP estimated shirt price.

Online vs. Offline purchases

33.3% (59/177) of respondents have purchased shirts online. The remainder has never purchased a dress shirt online.

Purchase Location

MP Shirts – 76.3% (90/118) of the respondents shopped at a retail location in mall location. The second most was secondary market/discount store at 34.7% (41/118), followed by boutique designer stores (not in a mall) at 14.4% (17/118). Figure 4-10 illustrates this breakdown in bar chart format:

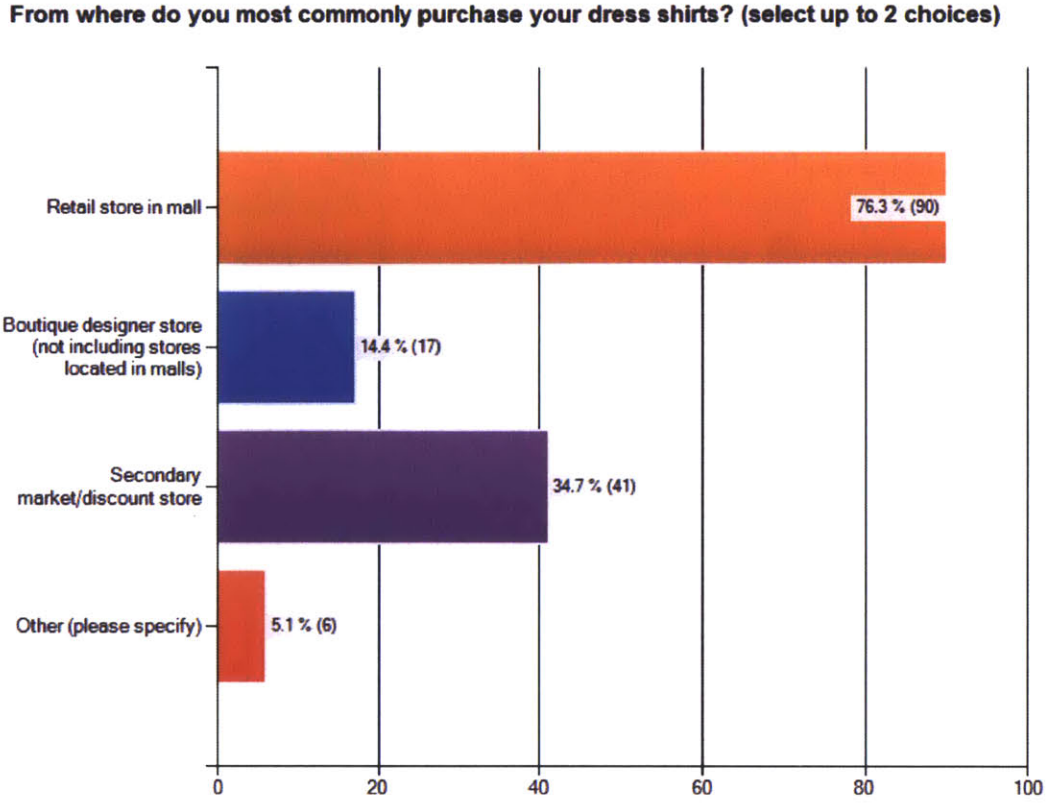



***Figure 4-10.*** MP shopping location.

Travel Mode to Retail Store

MP Shirts – 94.1% (111/118) of the respondents used a personal automobile to purchase their shirts, yet only 3.4% (4/118) and 2.5% (3/118) used public transport or walking respectively. Figure 4-11 shows the travel modal split:

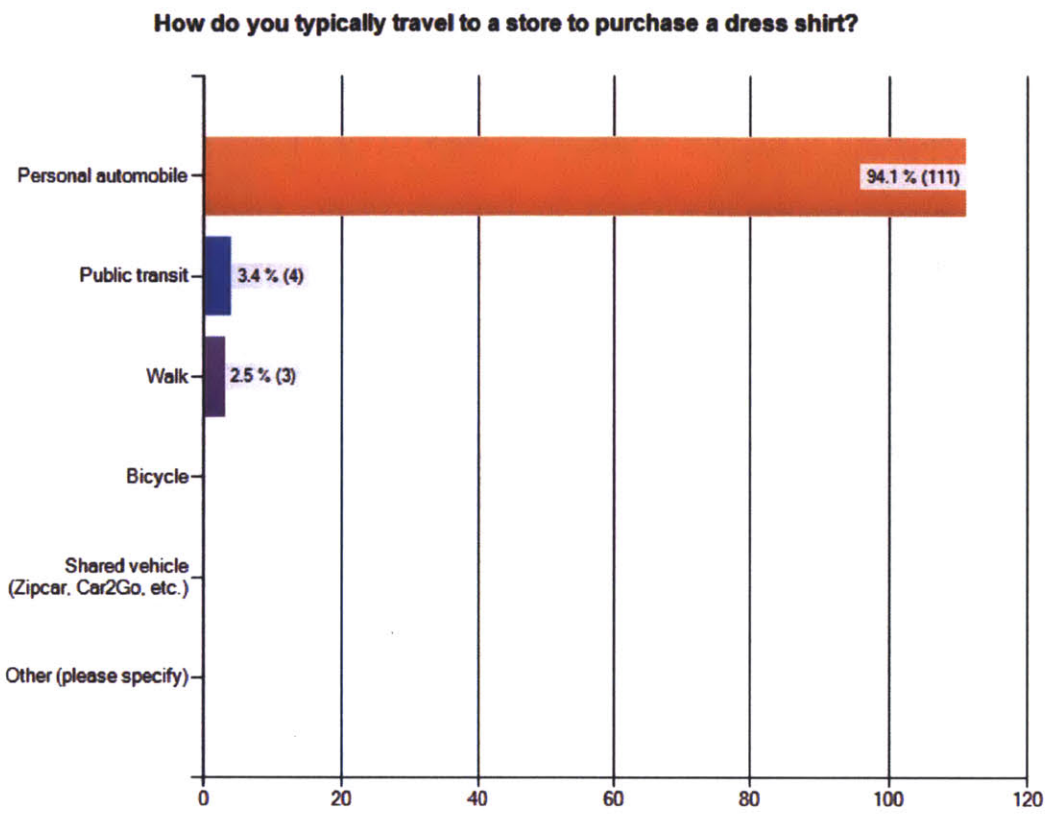



***Figure 4-11.*** MP travel mode.

Travel Distance

MP Shirts – The average travel distance in one direction was 7.2 miles. Most respondents traveled between 5-10 miles at 38.1% (45/118) and the second most traveled distance was between 3-5 miles at 25.4% (30/118). Respondents that traveled more than 10 miles was equal to 21.2% (25/118), however, we did not ask their maximum travel distance. Only 3.4% (4/118) said they travelled less than 1 mile. Figure 4-12 illustrates the typical travel distances:

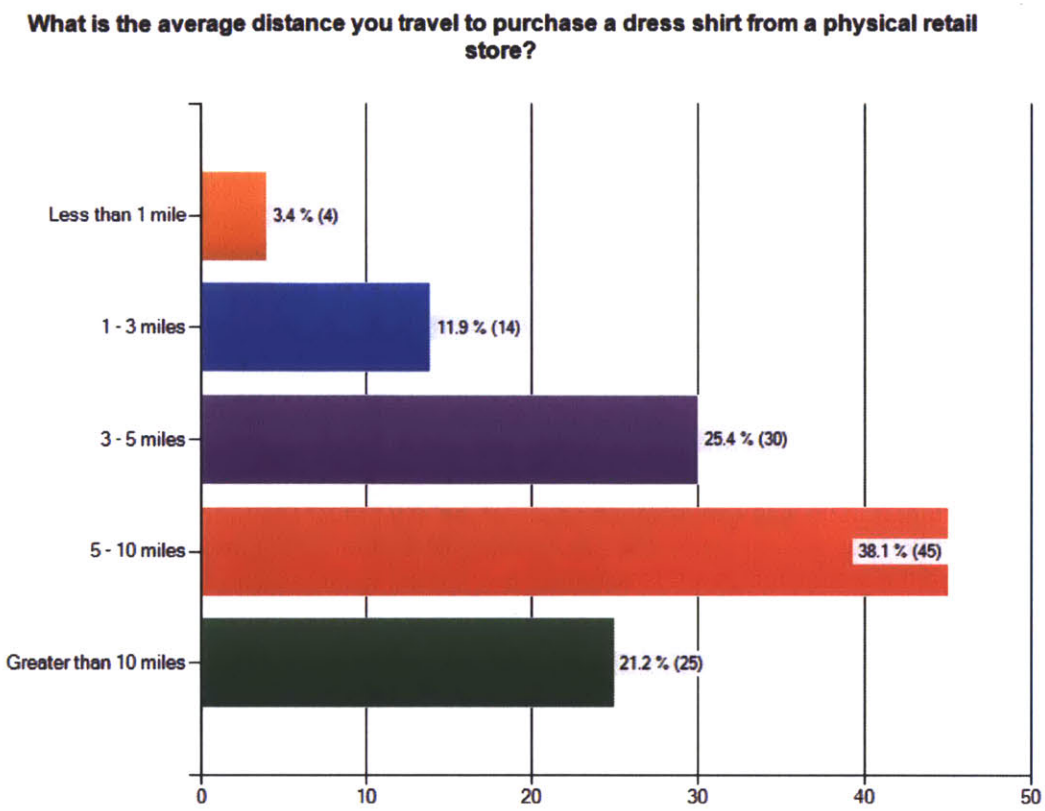



***Figure 4-12.*** MP typical travel distance.

Shirt Characteristics

MP Shirts – 38.4% (68/177) of respondents stated that fit was the most important characteristic when purchasing a dress shirt on a scale of 1-5 (1= most important, 5= least important). The second most important feature was the price at 27.7% (49/177). The third most important was fabric and construction quality at 35.6% (63/177). The second least important factor was aesthetics at 34.5% (61/177) and the least important factor was brand familiarity at 57.6% (102/177).

CT Shirts – Only three respondents owned only CT shirts, thus this data is too limited to draw any significant conclusions. The most important characteristics was fit (2/3), followed by fabric quality (2/3), then brand familiarity (2/3). The second least important feature was aesthetics (2/3). This is surprising as typically this is of high importance to MC shirts (again too few respondents to counter argue). The least important characteristic was the price.

MM Shirts – Only 2 respondents only owned MM shirts. Again this data set is too small to draw any conclusions, or to even rank importance.

MP + CT Shirts – A slightly higher number (15) of respondents owned shirts of this type. The most important characteristic is fit at 40% (6/15), followed by aesthetics at 33.0% (5/15), and then price/value at 33.3% (5/15). The second least important factor was tied at fabric construction quality and price/value at 33.3% (5/15). The least important factor was brand familiarity at 60% (9/15).

MP + MM Shirts – 15 respondents also owned only MP and MM shirts. Fit and price/value were tied for the most important feature at 33% (5/15) each. The third most important feature was

fabric construction quality at 40% (6/15). The second least important feature was aesthetics at 26.7% (4/15) and the least important feature was brand familiarity at 60.0% (9/15).

CT + MM Shirts – Only two respondents only had owned these types of shirts. This data set is too small to draw conclusions. The only point that the two respondents agreed was that fit was most important.

All Three Types – 17 respondents owned all three types of shirts. Fit was overwhelmingly was the most important feature at 70.6% (12/17), followed by fabric and construction quality at 41.2% (7/17), and then aesthetics at 23.5% (4/17). The second least important factor was price/value at 29.4% (5/17) and the least important factor was brand familiarity at 70.6% (2/17).

Store Characteristics

MP Shirts – 40.5% (47/116) of respondents stated that having good selection at the store was of most importance on a scale of one to five. 25.9% (30/116) of the respondents that stated that familiarity of the brands available at the store – this was second most important feature. The third most important reason was convenient location of the store at 27.6% (32/116). The second least important factor was the efficiency and predictability of the purchasing process was at 35.3% (41/116) and the least important characteristic is a knowledgeable sales staff at 49.1% (57/116).

Working with a Tailor Characteristics

The most important factor in working with a tailor for the 36 respondents that used a custom tailor is assurance that they will likely get exactly what they want at 58.3% (21/36). The second most important factor is the ability to touch and feel the fabric at 30.6% (11/36), followed by the ability to purchase other personalized or matching clothing items at the same time and/or location at 30.6% (11/36). The least important factor was relevant wardrobe advice at 27.8% (10/36) and the least important was the one-on-one relationship with the tailor at 25.0% (9/36).

MM Purchasing Characteristics

35 respondents owned a MM shirt in the study. The most important factor in purchasing a MM shirt is the certainty of fit at 62.9% (22/35). The second most important factor is that MM shirts are less expensive that CT shirts at 37.1% (13/35), followed by the ease of shopping online at 34.3% (12/35). The second least important factor was the direct home shipping at 34.4% (12/35) and the least important factor was the ability to create a uniquely styled shirt.

Cleaning Methods

MP Shirts – Most respondents at 62.6% (109/174) machine wash their dress shirts while the majority of the remainder dry clean 23% (40/174) or professionally launder 13.2% (23/174) their shirts. Just one person at 1.1% hand washed their shirts. Figure 4-13 illustrates washing preferences for MP shirts:

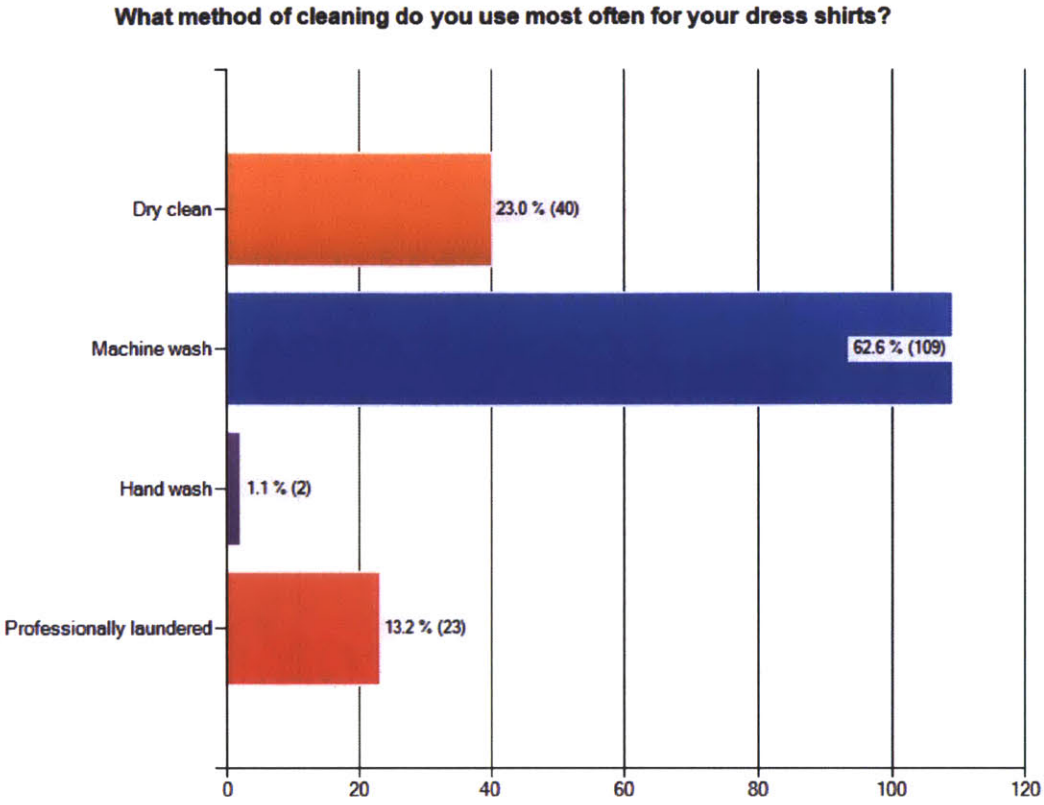



***Figure 4-13.*** MP washing methods.

CT shirts – Two out of three people that owned CT shirts use dry cleaning services. One respondent reported to have hand washed their CT shirts and not one CT owner used machine washing.

MM shirts – One person machined washed their MM shirt. The other has it professionally laundered.

MP + CT Shirts – 46.7% (7/15) respondents dry clean shirt shirts. Machine washing and professional laundering account for the remainder of 26.7% (4/15) for each.

MP + MM Shirts – 46.7% (7/15) respondents cleaned their shirts by machine washing. 40.0% (6/15) used dry cleaning and the remainder 13.3% (2/15) used professional laundering services.

CT + MM Shirts – One person dry cleaned and the other professionally laundered their shirts.

Cleaning Frequency

MP Shirts – 46.4% (81/174) of respondents clean their shirts after every use, no matter what the condition. 32% (56/174) clean after every second use and 15.5% (27/174) clean after every third use. Other responses account for remaining 5.7% (10/174). A sample of the "other" reasons includes: five uses, as needed, depends on smell/wrinkle ratio, depends on temperature and activity levels, and hardly ever. Figure 4-14. shows MP cleaning frequency:

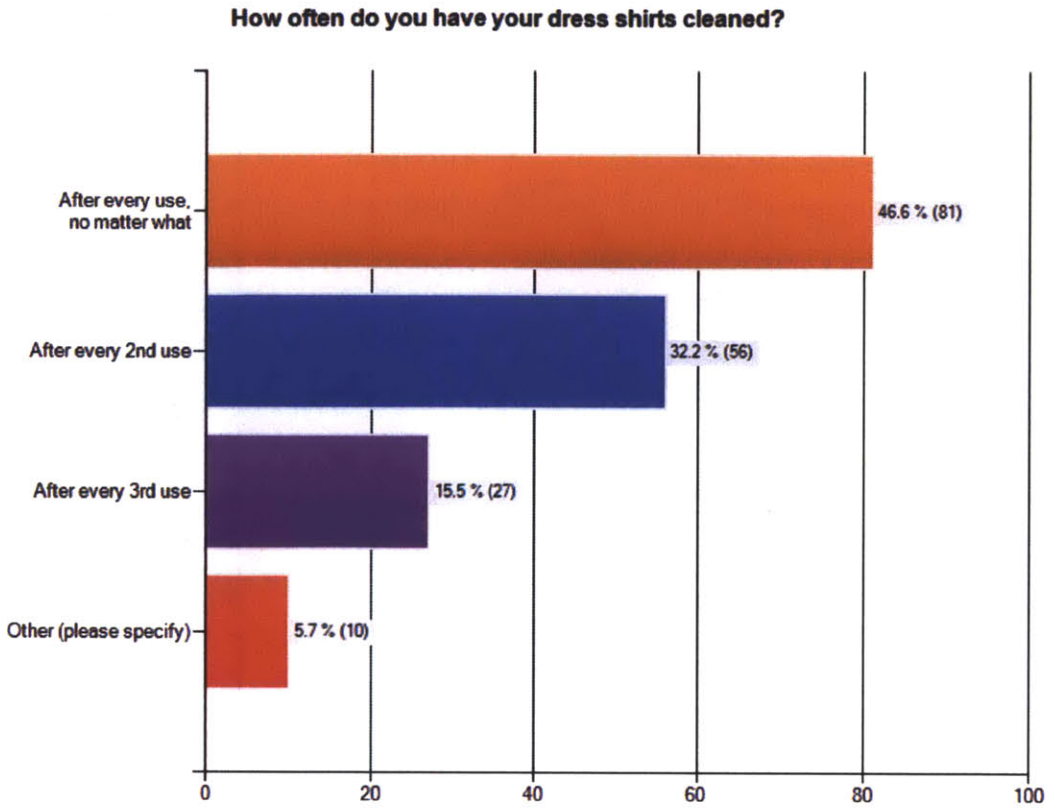



***Figure 4-14.*** MP cleaning frequency.

CT Shirts – Respondents equally cleaned their shirts after every use (1), after every second use (1), and after every third use (1).

MM Shirts – One person cleaned after every second use while other cleaned after every fourth use.

MP + CT Shirts – Owners cleaned after every use and after every second use equally at 46.7% (7/15). Just one respondent cleaned after every third use.

MP + MM Shirts – 46.7% (7/15) respondents cleaned after every use, no matter the condition of the shirt. 40.0% (6/15) washed after every second use. Just one person washed after the third use (6.7%). The last person chose other reasons for cleaning.

CT + MM Shirts – Both respondents cleaned after every use, no matter what the condition.

Number one reason for cleaning

MP Shirts – 37.4% (65/174) of respondents clean their shirts because of wrinkling. 31.0% (54/174) clean when their shirts have a bad odor. 19.0% (33/174) clean when shirts are visibly dirty. 12.0% (22/174) selected "other." Figure 4-15 below illustrates reasons for cleaning:

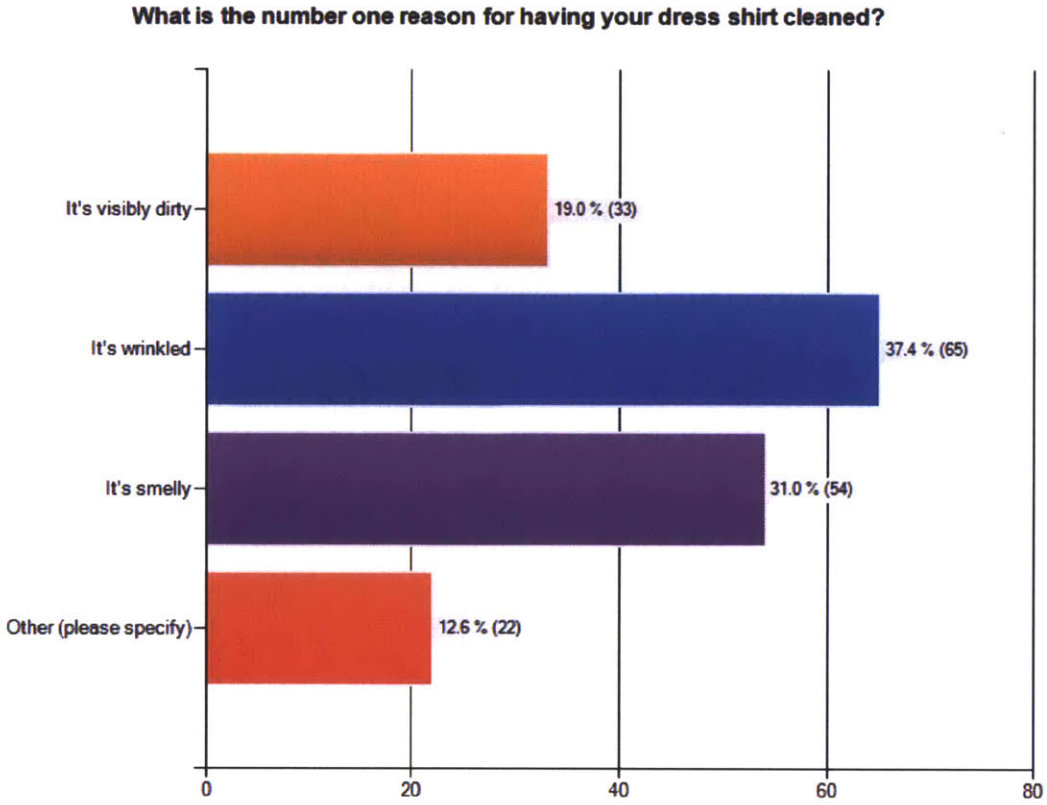



***Figure 4-15.*** MP cleaning reasons.

CT Shirts – 2 of 3 respondents cleaned their shirts because they smelled.

MM Shirts – Both respondents washed because their MM shirts were wrinkled.

MP + CT Shirts – 47.7% (7/15 of respondents washed when their shirts were wrinkly. 33.3% (5/15) cleaned after their shirts were visibly dirty. Just one respondent cleaned because their shirts smelled. 13.3% cleaned for other reasons.

MP + MM Shirts – 46.7% (7/15) cleaned because their shirts were wrinkled. 20% (3/15) cleaned because of their shirts were visibly dirty. 13.3% (3/15) because their shirts smelled. The remaining 20% (3/15) cited other reasons for cleaning.

CT + MM Shirts – Both respondents cleaned when the shirt was wrinkled.

Returns

MP Shirts – 45.4% (79/174) of respondents did not return any of their shirts. 40.8% (71/174) of respondents returned one to two of their shirts. 10.3% (18/174) returned three to four of their shirts. 3.4% (6/174) returned five to nine of their shirts. Figure 4-15, below, provides a full breakdown of return percentages. The mean return rate for all MP shirt respondents is equal to 1.22 shirts. The mean number of shirts in the study was 14.2 shirts, thus the average return rate is 8.59%.

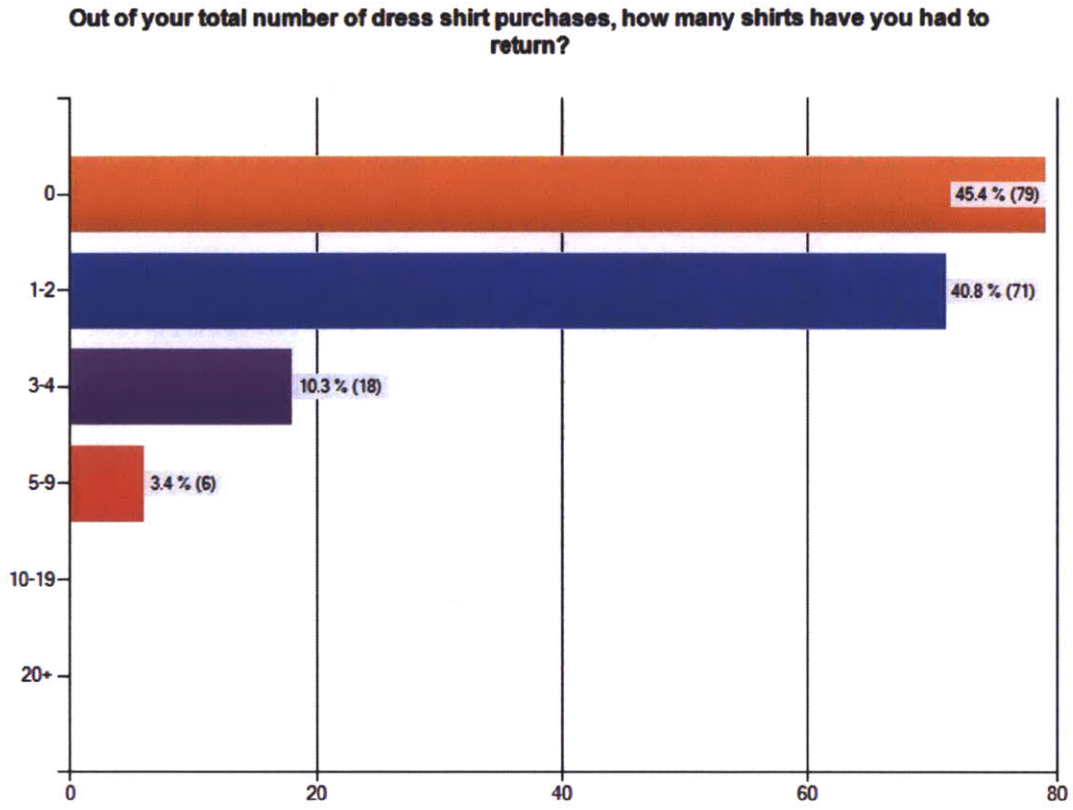



***Figure 4-16.*** MP number of returns.

CT Shirts – Just 2 people returned their 1-2 of their shirts.

MM Shirts – One person returned their shirt 5-9 times.

MP + MM Shirts – 71.4% (5/7) returned their MP shirts 1-2 times. 42.9% (3/7) returned MM shirts 1-2 times, whereas one person returned their MM shirts 3-4 times.

MP + CT Shirts – 62.5% (5/8) had returned their MP shirt 1-2 times and 25% (2/8) returned them 3-4 times. 25% (2/8) of the respondents returned the CT shirts 1-2 times.

CT + MM Shirts – One person returned their MM shirt 1-2 times.

MP + MM + CT Shirts – 58.3% (7/12) of the respondents returned 1-2 of their MP shirts. 16.7% (2/12) returned 3-4 and 8.3% (1/12) returned 5-9 and 10-19 shirts respectively. One third respondents (4/12) returned their MM shirts. Just one person returned their MM shirts 3-4 times. 25% (3/12) respondents returned their CT shirt 1-2 times.

Top Reasons for Returns

MP Shirts – Fit was the top reason for returning MP shirts at 54.7% (52/95). 24.2% (23/95) returned their shirts because of shirt defects. 20.0% (19/95) did not like how the shirt looked after leaving the retailer. 18.9% (18/95) returned because it was a gift that they did not like, 8.4% (8/95) believed the fabric felt differently than expected, and 4.2% (4/95) had matching problems with their other clothing. Figure 4-16 illustrates the reasons for returns:

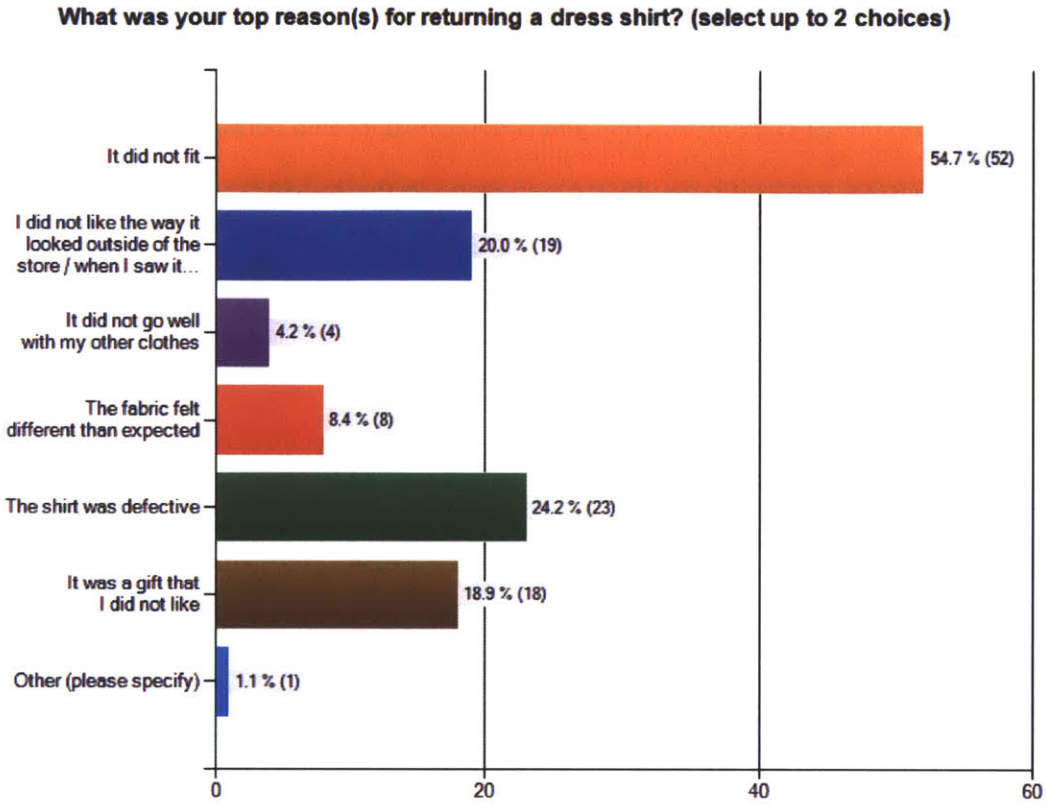



***Figure 4-17.*** Reasons for returns.

CT shirts – One respondent returned their shirt because the fabric felt differently than expected and one had a defective shirt.

MM Shirt – The top reason for returning was that their MM shirt did not match well with their other clothing. This was for just one respondent.

MP + MM Shirts – 51.7% (4/7) returned their shirts because they did not fit. Shirt defects and undesirable gifts were second at 28.6% (2/7) each. One person (14.3%) did not like the way the shirt looked outside of the store, as did one person for the fabric feeling differently than expected.

MP + CT Shirts – Respondents were allowed to select two choices for this question. 50% (4/8) returned their shirts because they did not fit and another 50% returned because the shirt was defective. Two respondents did not like the way the shirt looked outside of the store and one respondent each felt the fabric was different than expected or it was a gift that they did not like.

CT + MM Shirts – One respondent cited defects as the reason for returning their one shirt.

MP + MM + CT Shirts – Respondents were allowed to select their top two reasons for returning dress shirts. 58.3% (7/12) of respondents returned shirts because they did not fit. 33.3% (4/12) did not like the way the shirt looked outside of the retail environment. 25.0% (3/12) returned shirts because it was a gift they did not like. 16.7% (2/12) of respondents either had matching problems, had defective shirts, or felt that the fabric was different than expected.

Marital Status

70.2% (158/225) of respondents were married. 19.6% (44/225) were single. 6.2% (14/225) had a

domestic partner. 1.8% (4/225) were either separated or divorced and one respondent was widowed.

Household Income
36.9% (79/214) of respondents reported yearly household income between $100,000 and $250,000. 22.4% (48/214) reported $75,000 to $100,000 a year. 18.7% (40/214) reported $50,000 to $75,000 a year. 13.1% (28/214) reported $25,000 to $50,000 a year. 5.6% (12/214) reported income over $250,000. 3.3% (7/214) reported less than $25,000 a year. The mean yearly household income for all respondents was $122,500.

### 4.5 General Survey Observations and Conclusions

This section summarizes key observations in the major question areas of the general survey.

Shirt Wearing Behavior
Most men did not wear all of their shirts (55.7%) and 33.2% wear half or less of all of their shirts. The main reasons for not wearing are either that the shirt was worn out (39.3%) or that the shirt does not fit (38.5%).

Shirt Ownership
Most men do not own a single MC shirt (75.7%). The remainder of the field either owns a combination of MP and MC shirts, while a minority own just MC shirts (2.0%). The top reason for not owning was perceived high cost at 73.6% (CT) and 45.1% (MM). The second highest reason for not owning an MM shirt was that respondents did not know they exist as a product category (41.2%).

Average Price
The average MP shirt in this general survey was $39.39. The average price for CT shirts was $86.16 and MM shirts were $39.50, however there were only three and two respondents respectively, thus this was too small a sample to make comparisons.

Shopping Location and Travel
The majority of respondents shop at a retail location at a shopping mall (76.3%) and almost all traveled by automobile (94.1%) a distance of 7.2 miles in one direction.

Shirt Characteristics
The most important feature across all shirt type owners was fit at 38.4% (MP), 40% (MP+CT), 33% (MP + MM), and 70.6% (MP + MM + CT). The number of responses for the other categories was too small to make evaluations.

Cleaning
Most of the MP respondents machine wash their shirts (62.6%) followed by dry cleaning (23%) and professional laundering (13.2%). CT shirt owners dry clean at a higher rate (46.7%) and machine wash less at 26.7%, while MM shirt owners machine wash at 46.7% and dry clean at 40.0%. Washing after every use (46.4%) and after every second use (32.2%) was the top two cleaning schedules for MP shirts. The results were similar for MC shirts. The reason for washing was because the shirt was wrinkled (37.5%) and odorous (31.0%) for MP shirts. Again the reasoning was nearly identical for MC shirts.

Returns
40.8% of MP respondents returned at least one or two of their shirts, while 10.3% returned at least three to four shirts. The resultant return rate for the study was 8.59%. The return rate for one

to two shirts for MC shirt owners was 62.0%, however, only 17.2% returned three to four. (This set of data seems to deviate from the industry standard of nearly 20% for offline MP retail and 10% (or less) for MC online and offline retailing). The number one reason for returning was fit for all shirt types – 54.7% (MP), 51.7% (MP + MM), 50% (MP + CT), and 58.3% (MP + MM + CT). Shirt defects, unwanted gift, and the look after purchase were all secondary factors across all shirt type owners.

Use Rate Comparisons

Comparing use rates between MP and MC shirts is a useful metric of the utility of a product. This survey compares the following shirt ownership groups 1) those that own MP and CT shirts, 2) owners of MP and MM shirts, and 3) those that own all three shirt types. The survey asked respondents to estimate the number of times they wear their MP and MC shirts per week. Although, this is just an estimate, the results provide what the respondents "project" to be their shirt wearing behavior. These projections establish a baseline use rate for comparing actual use rates by the 18 study participants in the shirt acquisition and tracking experiments.

The sample size was small at 24.3% (59/243) of the entire field that owned at least one MC type of shirt. However, this is more than three times the number of participants in the latter phases of this study and should provide enough data to provide a baseline understanding of use rate.

MP + CT shirts – 15 participants stated they owned both MP and CT shirts. Amongst this group, the average number of MP shirts within their wardrobe was 11.5 shirts and the average number of CT shirts was 7.8 shirts for total average of 19.3 shirts. Thus, the percentage wardrobe for MP was 59.6% and CT was 40.38%. This is considered the ideal use rate because if every shirt was worn equally then the ideal use rate would equal the ownership percentage. However, when looking at use rate, the average use rate for MP was 71.7% and CT was 28.3%. If we assume each shirt is worn equally (i.e., 10 shirts in a wardrobe are worn once over a period of 10 days), we can then compare use rate with ownership rate. The resulting difference is negative (-12.1%) for CT usages (40.4% ownership vs. 28.3% usage). Table 4-2 organizes this information:

| Shirt Type | Shirts (Ave) | Ownership Rate (%) | Projected Use Rate(%) | plus/minus (%) |
|---|---|---|---|---|
| MP | 11.5 | 59.6 | 71.7 | 12.1 |
| CT | 7.8 | 40.4 | 28.3 | **-12.1** |

***Table 4-2.*** Projected CT use rate.

MP + MM Shirts – 15 participants stated they owned both MP and MM shirts. Amongst this group, the average number of MP shirts within their wardrobe was 11.4 shirts and the average number of MM shirts was 7.2 for a total average of 18.6 shirts. Thus the percentage wardrobe for MP was 61.3% and MM was 38.7%. Like the MP + CT comparison, the average use rate for MP was equal to 69.4% and the MM rate was 30.6%. Again, if we compare use rate vs. ownership percentage we find a negative use rate (-8.2%) for MM dress shirts.

| Shirt Type | Shirts (Ave) | Ownership Rate (%) | Projected Use Rate(%) | plus/minus (%) |
|---|---|---|---|---|
| MP | 11.4 | 61.3 | 69.4 | 8.1 |
| MM | 7.2 | 38.7 | 30.6 | **-8.1** |

***Table 4-3.*** Projected MM use rate.

MP + MM + CT Shirts – 17 participants stated they owned all three shirt types. Amongst this group the average number of MP shirts was 14.5, MM shirts was 7.2, and CT shirts were 5.3, for a total average of 27.0 shirts. Thus the percentage ownership was equal to 53.8 % (MP), 26.7% (MM), and 19.5% (CT) shirts. The use rate projected by respondents was equal to 55.3% (MP), 20.5% (MM), and 24.2 (CT). Therefore, we find a positive increase in projected use rate for MP shirts (+1.5%) and CT shirts (+4.7%), but a decrease for MM shirts (-6.2%).

| Shirt Type | Shirts (Ave) | Ownership Rate (%) | Projected Use Rate(%) | plus/minus (%) |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| MP | 14.5 | 53.8 | 55.3 | **1.5** |
| MM | 7.2 | 26.7 | 20.5 | **-6.2** |
| CT | 5.3 | 19.5 | 24.2 | **4.7** |

***Table 4-4.*** Projected MM and CT use rate.

Previous surveys that have included MC groups (community and customers of MC providers) have suggested that use rates can be potentially higher for MC shirts (ranging from 4-10%). However, the general survey suggests that that MC shirts maybe used less in relation to their MP counterparts. This could be attributed to price difference or shirts that are dedicated only for special occasions. The tracking portion of this study will examine these patterns of use in detail and will use the responses by participants in the general study to compare what they stated and what they actually wore during the 3-month tracking period.

### 4.6 Quantitative Survey Conclusion

This quantitative study of 276 men on their shirt usage and purchasing behavior produced mostly obvious and intuitive results. Nonetheless, there were a number of key insights that were not immediately obvious. The majority of respondents owned mostly standard MP shirts (75.7%), while the remainder owned a combination of MP and MC shirt types (mostly with just one MC shirt). The percentage of people that owned MC shirts was very low (2%). Most respondents perceived MC shirts to be expensive and that was the top reason for not owning them. The second highest reason was that many did not even know that MM shirts existed as a product at 41.2%. The average price of a shirt in this survey was $39.39, while the average price for MC shirts were much higher at $86.16 (but this number was based on very few respondents).

The majority of respondents shop at a retail location at a shopping mall (76.3%) and almost all traveled by automobile (94.1%) for a distance of 7.2 miles in one direction. Only four people took public transit and three walked. When purchasing a shirt, the most important characteristic that respondents were looking for was fit at 38.4% (MP), 40% (MP+CT), 33% (MP + MM), and 70.6% (MP + MM + CT). This was the nearly uniform response for virtually all ownership groups.

The results from consumer use were the most intriguing because of the range and magnitude of responses. The most striking was that most men did not wear all of their shirts (55.7%) and 33.2% wore half or less of all of their shirts. Fit was nearly tied for the primary reason for not wearing at 38.5%. Respondents did discriminate the type of shirt maintenance based on the type of shirt. Most MP respondents used machine-washing at home and ironing at 62.6%, while most of the remainder either dry-cleaned or professionally laundered their shirts. Conversely, those that owned MC tended to outsource cleaning at a higher rate (40.0%). Wrinkling of shirts was the number one reason (37.5%) for cleaning a shirt over and above odor or cleanliness.

The results for returns were surprising because the apparel industry standard for MP returns is currently very high (~ 40% for online and 20% for offline retail). But respondents for both MP and MC reported lower returns. 40.8% of MP respondents returned at least one or two of their shirts, while 62.0% of MC respondents returned at least one or two. Not surprisingly, fit was the top reason for returns across the entire study at 54.7% for (MP), 51.7% for (MP + MM), 50% for (MP + CT), and 58.3% for (MP + MM + CT).

Collectively this data does present opportunities to drastically improve carbon emissions by simply changing maintenance habits or how shirts are acquired. This will be discussed in the next chapters.

# Chapter 5

# Experiment I: Shirt Acquisition and Follow-up Survey

## 5.1 Goal of Experiment I

The two primary goals of this experiment are: 1) to understand how study participants make decisions during the retail experience and, 2) to successfully introduce two new dress shirts (1 MC, 1 MP) of approximately the same retail value into the participant's wardrobe. The introduction of new dress shirts is a necessary step for making comparisons between MC and MP shirts in Experiment II (shirt tracking). A second set of online surveys created for each type of shirt "purchased" in Experiment I (MP, CT, MM) was designed to understand travel behavior, modal choice, store selection, time spent, outside influences, and other factors in customer decision making. Survey responses from the participants of this phase can then be compared to responses in the general survey.

### 5.2 Chapter Time Line (Chapter 5)

| Chapter 3 | Chapter 4 | **Chapter 5** | Chapter 6 | Chapter 7 |
|---|---|---|---|---|
| Environmental Impact Analysis of MP and MC | Quantitative Survey of Shirt Usage and Ownership Patterns | **Experiment I: Shirt Acquisition and Follow-up Survey** | Experiment II: Shirt Tracking and Use Patterns | Conclusion |
| Desk Research | 750 Respondents (276 used in analysis) | 18 participants | 18 participants | All Respondents and Participants |
| Interviews with MC and MP shirt makers | Survey of Shirt Owners of: MP and MC shirts | Acquisition of new shirts: 8 Made-to-Measure (MM), 10 Custom Tailored (CT), and 18 MP | Shirt Cataloging and Shirt Tracking (60 days of shirt data) | Data Visualization and Analysis |
| Oct 15 (2009)-Aug 31 | Jun 15 - Dec 22 | Acquisition + Survey (Feb 16-Mar 16), Design of Tracking System (Oct 15-May 7) | Cataloging (Apr 13-23), Tracking (May 7-Aug 31) | Aug 1-31 |
| 2009 to 2012 | 2011 | 2012 | 2012 | 2012 |

***Table 5-1.*** Thesis time line (Chapter 5).

### 5.3 Design of Experiment I

The experiment was designed so that every participant would "purchase" a new MP and a new MC shirt. The field was divided roughly evenly between MM and CT shirts in order to create an even distribution of different MC shirt types. The retail price for all shirts in Experiment I was approximately the same (~$100). This allowed for the comparison of at least one MP shirt of nearly equivalent retail value to the new MC shirt. This also enabled our analysis, in part, to discount some novelty effects, as well as to provide us another shirt to directly compare because many participants have only MP shirts in their wardrobe at a different cost level.

The acquisition of the MP shirt was designed to simulate normal consumer behavior and to follow the participant from the beginning of the process (i.e., deciding where to go shopping) to the very end (i.e., final decision and return home). Each participant was given a $100 gift card to "purchase" a new MP shirt from any retailer (including online stores). A set of instructions guided them through the process to ensure that they purchase a shirt that would qualify for this study (i.e., a shirt that they would normally wear in a professional office environment). The guide also suggested that the participant keep good mental notes, so that they can fill out a survey after they have both shirts in their possession.

The acquisition of the MC shirts was designed to divide the field evenly into MM and CT shirts in each office (MIT Technology Review and Fidelity). CT participants simply show up for their scheduled appointment and then work with the style consultant. They are cautioned not to purchase an "extreme" or "loud" shirt – a shirt out of their stylistic norm as MC shirts can allow for

unique designs. MM participants were also asked to refrain from this purchase behavior. A code and pin was provided to the set of MM participants in order to design and purchase their new MM shirt on the website. After designing their new MM shirt they receive the shirt in the mail, verify the fit and look of the shirt, and then fill out the MM survey. All participants were instructed to return any shirt (MP or MC), if it was not satisfactory.

Blank Label provided MM shirts at their manufacturing cost which were worth approximately $100 retail. Both 9Tailors and Dillon Road also provided their CT shirts at manufacturing cost, also worth approximately $100 retail.

### 5.4 Procedure and Rules

Below is the sample set of instructions for the acquisition of MP and MC shirts given to participants. Every participant was given the same MP shirt instructions, whereas the MC shirts were divided evenly between MM and CT shirts. All participants were asked to purchase their MC shirts first, as it takes 2-4 weeks for shirts to be delivered.

MM Shirt Instructions (Sample)

1) By no later than February 20th, go to the following made-to-measure custom shirt website to design and personalize your custom shirt (use the "Customize Your Own" link):

   http://www.blanklabel.com/

   *While customizing the shirt, please follow these guidelines*:

2) To the best of your ability, keep mental notes of your shopping experience (e.g., the decisions you made, your level of enjoyment of the process, or any other key moments you can identify). You will be asked detailed questions about your experience later on.
3) Spend as close to the maximum amount of this gift certificate ($100) including taxes and shipping. If you go over by a few dollars you will have to pay the additional cost.
4) Select the shipping option so that you will receive the dress shirt in the mail by March 26th, 2012. (If you wish to receive the shirt earlier, you can select expedited shipping, but make sure to factor this additional cost into your budget).
5) To purchase the shirt, enter the following code and pin at the checkout:

   CODE: **694aa479d381**
   PIN: **1737**

6) On Monday, February 20th, you will receive an email with instructions for completing a follow-up survey asking questions about your custom dress shirt shopping experience.

CT Shirt instructions (Sample)

1) Go to the custom tailor shirt appointment from **1:30-2:00pm** in "Eric's" Room.
2) You will work one-on-one with the style consultant to create your custom shirt.
3) To the best of your ability, keep mental notes of your experience (e.g. the decisions you made, your level of enjoyment of the process, or any other key moments you can identify, etc.). You will be asked detailed questions about your experience later on.
4) Your shirt has already been purchased, so you do not need to pay the style consultant.

5) You should receive your shirt within 2-4 weeks from the date of your appointment, however additional appointments may be required to make any adjustments to the fit. MIT researchers will be coordinating this follow up fitting if necessary.
6) On Monday, February 20th, you will receive an email with instructions for completing a follow-up survey asking questions about your custom dress shirt shopping experience.

MP Shirt Instructions for "Standard 'Off-the-rack' Dress Shirt" (Sample)

1) While waiting for your custom shirt to arrive, purchase a standard men's dress shirt using the attached $100 gift card. You may go to any store (online or offline) to shop for and purchase a standard dress shirt of comparable retail value to the custom shirt that you just created.
2) You must purchase this shirt and have it in your possession by March 26th, 2012. (This is the same deadline as receiving the custom shirt). You may, of course, purchase this shirt sooner if you prefer.
3) Go to the store(s) that you normally frequent for purchasing men's dress shirts and use your typical transportation mode(s) (e.g. car, public transit, etc.).
4) To the best of your ability, keep mental notes of your shopping experience (e.g. the decisions you made, your level of enjoyment of the process, or any other key moments you can identify). You will be asked detailed questions about your experience later on.
5) Spend as close to the maximum value of the gift card including taxes and/or any shipping. If you go over by a few dollars, then you will have to pay the additional amount. If there is any remaining balance on the gift card, please return the gift card to the researchers.
6) The gift card has been activated already, so you can simply start shopping.
7) Be sure to save the receipt. We will ask for this when we start the next stage of the research project.
8) On Monday, February 20th, you will receive an email with instructions for completing a follow-up survey asking questions about your standard "off-the-rack" dress shirt shopping experience. This survey should be completed after purchasing your standard dress shirt.

### 5.5 CT Design Process and Style Consultation

The CT design consultation was the only part of the acquisition phase that could be observed by experimenters. Participants conducted the MM acquisition process in privacy using the online configurator, while the MP shirt acquisition was made during a separate shopping trip (often in the company of a family member or friend). Subjects were not asked to document the MM or MP process, except to answer survey questions after purchasing their shirts. The following series of photographs describes the steps taken in a design session with a style consultant.

After being introduced to the overall rules of Experiment I (Figure 5-1), participants attend their scheduled 30-minute appointment with the style consultant in a separate room (Figure 5-2). Parallel style consultations were held in Fidelity's offices and the style consultants were from 9Tailors in Boston.

***Figure 5-1.*** Presentation of Experiment I rules.

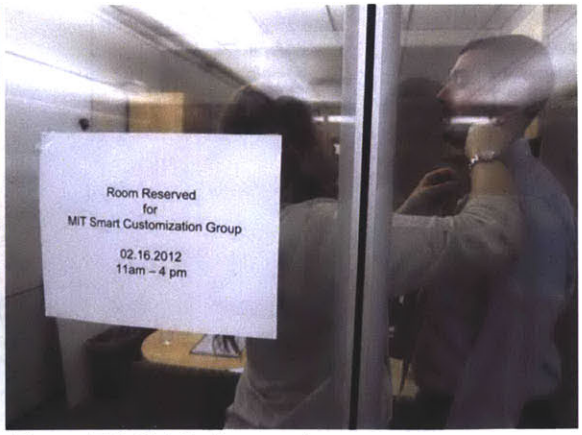



***Figure 5-2***. CT design session.

Participants then work with the style consultant to select overall shirt styles, fabric/patterns, and all customizable components like cuffs, buttons, collars, plackets. They also discuss personalization options like monograms and accent fabrics (Figure 5-3):

***Figure 5-3.*** 30-minute design session with 9Tailors style consultant.

Measurements by the style consultant (Figure 5-4) along with verification of the order are the final steps to the CT design process. The total time for most participants was between 15 to 40 minutes.

***Figure 5-4.*** Body measurements by 9Tailors style consultant.

CT shirts from 9Tailors arrive about four weeks later and a second set of appointments was scheduled for final fitting. Any additional adjustments were made locally and returned to the participant's office.

Participants at Technology Review's office were provided shirts from Dillon Road, a CT retailer from New York City. The process was very similar to 9Tailors in terms of total time and measurements. However, Dillon Road utilizes an iPad application to display shirt styles and to record preferences from the customers (Figure 5-5):

***Figure 5-5.*** Design session with Dillon Road style consultant utilizing an iPad application.

The fabric selection was similar to 9Tailors with the use of fabric swatches as participants and style consultants discussed customization options (Figure 5-6). The style consultant also took measurements and verified the order (Figure 5-7 and 5-8):

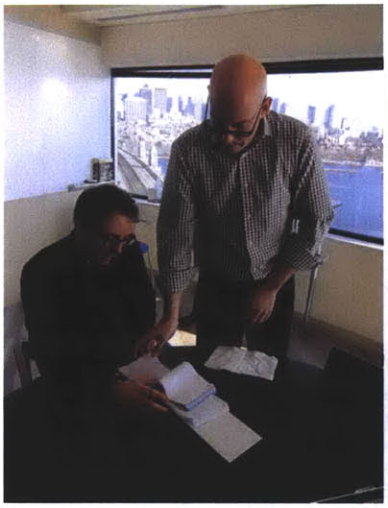


***Figure 5-6.*** Fabric selection and design discussion.

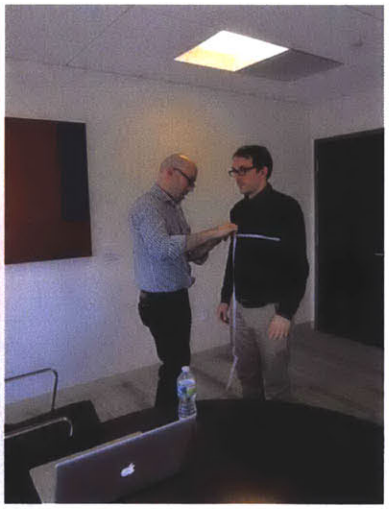


***Figure 5-7.*** Measurements.

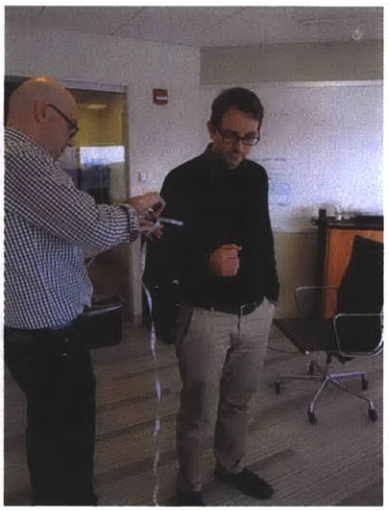


***Figure 5.8.*** Dillon Road measurement session.

CT shirts from Dillon road also took approximately four weeks to manufacture and deliver. Because of the distance from New York City to Boston, Dillon Road sent shirts via UPS to the participants.

### 5.6 Survey Results

The following participants successfully acquired a new dress shirt(s) and completed their respective surveys.

MM – 10 Participants
CT – 12 Participants
MP – 21 Participants

All respondents participated in the MP acquisition; however, there are three options in this mode (Online, Offline, or Both). 14.3% (3/21) of respondents shopped online. 66.7% (14/21) shopped at an offline retail store. 19.0% (4/21) shopped both in online and offline retail environments. Below is a diagram describing this breakdown:

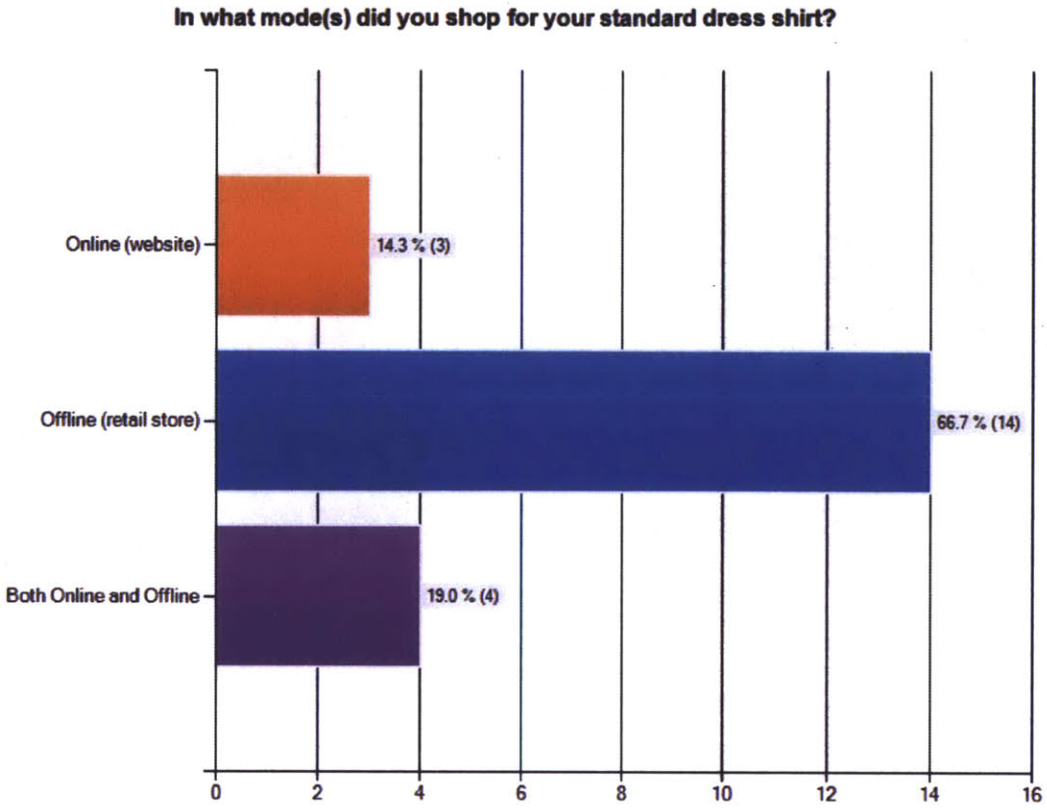



***Figure 5-9.*** Study shopping modes.

### 5.7 MM, CT, MP Online, and MP Offline Comparisons

The following section makes direct comparisons between MM, CT, and MP Online and Offline retail experiences. In several cases, comparisons are only between two modes. For example, MM does not require any travel; therefore we only compared CT and the two MP modes. A second example is that the MP model does not allow you to design any of the components, thus we only compare MM and CT in terms of cuffs, collars, accent colors, buttons, etc. Finally, the influence of family members or friends was not a factor in CT shirts, whereas it did play a role in the MM and MP experiences.

Design Strategy and Considerations

Both CT and MM participants expressed a strong desire to design something unique to their wardrobe (60.0% and 66.7% respectively) whereas MP respondents were looking to purchase a shirt similar to what they already have in their wardrobe. Participants in all modes except MP offline stated that an office dress code was an influential factor in the decision making process at 40.0% (MM), 50.0% (CT), and 100.0% (MP Online). The influence of the style consultant in the CT shirt stood out as a differentiating factor amongst all modes. Over half of the respondents stated that their style consultant was very convincing and/or influential at 58.3% (7/12).

- MM Results

Participants were allowed to select all strategies that applied to their MM purchase. 60% (6/10) of respondents were looking to design a MM shirt unique relative to their existing wardrobe. 40% (4/10) was looking to design a MM shirt that was similar to their existing wardrobe. 30% (3/10) had no preconceived strategy, while 20% (2/10) was looking for a particular color and fabric range. One person had "other" reasons, which included the desire for great fit and to explore the service.

50% (5/10) of respondents stated that "other" factors were influential in making decisions on their MM shirt. These factors included 1) looking for a range of fabrics, 2) interested in a stylish, yet not "wild" shirt, 3) to reproduce a shirt he used to have, 4) fabric and color, and 5) designing something similar to fashions he's seen in stores that did not fit. 40% (4/10) stated that the website showed designs that they thought were nice to emulate. Another 40% stated that their office has a dress code, so they designed to accommodate this. One person stated there were no other factors.

- CT Results

  Participants were allowed to select all strategies that applied to their CT experience. 66.7% (8/12) of respondents were looking to design a CT shirt that was unique relative to their existing wardrobe. 33.3% (4/12) had no preconceived strategy. 16.7% (2/12) were looking for a particular color and fabric range. 8.3% (1/12) were looking to design a CT shirt that was similar to their existing wardrobe. One person had "other" reasons that included looking for guidance for measurements.

  58.3% (7/12) of responded stated that their style consultant was very convincing and/or influential. 50% (6/12) stated that their office has a dress code, so they designed to accommodate this. 33.3 (4/12) was under time pressure, so they just picked the first appropriate design. 8.3% (1/12) stated equally that they either had no factors influencing their designs or that their significant other would appreciate certain colors and features, so they chose those. A significant proportion, 41.7% (5/12), stated "other" influential factors. This included factors such as 1) wanting a shirt that could be worn in the office, but also stylish enough for presentations, 2) purely on his own wants, likes, and taste, 3) wanted to incorporate features from previously owned custom shirts and to explore new designs, and 4) fabric swatch size – the participant wanted to spend more time to design an "awesome" shirt.

- MP Online Results

  Only three respondents shopped online. Two of the three stated "other" as their strategy, while one stated that they were looking to purchase a shirt that was similar to what they already owned. One respondent was looking for something completely different than what they have in their wardrobe, but knew they wanted a shirt in a particular color or brand. (Participants were allowed to select all that apply to answer this question).

  All three respondents stated that their office has a dress code, so they designed a shirt that would work well for the office. One respondent liked designs from the websites they saw and tried to emulate them.

- MP Offline Results

  35.7% (5/14) of the respondents were looking to purchase a shirt similar to what they already had in their wardrobe. 28.6% (4/14) was looking to purchase a shirt in a particular color and fabric range. 14.3% (2/14) was looking to purchase something completely different than what they already had in their wardrobe. 7.1% (1/14) of respondents

equally admired another shirt on another person and was looking to find a similar style or had no perceived strategy. A significant percentage of respondents, selected "other" as a strategy for purchasing a new MP shirt at 35.7% (5/14). This included 1) looking for something not completely different (too strong a statement), just slightly different, 2) something his style, but not already in his wardrobe, 3) looking for a great-fitting shirt with a spread collar that was also professional enough for the office, 4) had difficulty finding a shirt at the $100 retail value because they normally spend much less, so they had to shift to stores that they did not normally shop, and 5) had a pre-determined stores, Nordstrom Rack and then Nordstrom, but stopped by another store, Thomas Pink, since it was closest to the mall entrance. (Participants were allowed to select all that apply to answer this question).

A particular brand or range was important for the majority of respondents when selecting a shirt at 66.8% (10/15). While 40.0% (6/15) browsed the entire store. 26.7% (4/15) either asked the sales associate for what would look good, had someone come with them to go shopping, or had no preconceived idea, but simply knew what they wanted when they saw it. 13.3% (2/15) picked the first appropriate shirt that they came across. Just one person asked the sales person first. 13.3% (2/15) selected "other" which included responses such as 1) trying to spend exactly $100, and 2) asked sales associate to help find a $100 slim fit dress shirt with broad collar. (Participants were allowed to select all that apply to answer this question).

- MP Online and Offline Results
  50.0% (2/4) of these four shoppers had no preconceived strategy for choosing their shirt. Just one respondent was looking to purchase a shirt that was similar to what they already had in their wardrobe. Another single respondent admired a similar shirt on another person and was looking for something similar. Two of the four selected "other" and stated 1) that he was looking for a particular brand (Takumi) made of 100% cotton and that was well priced and 2) that he was looking for something different from their wardrobe, but not completely different. (Participants were allowed to select all that apply to answer this question).

Number of Shirt Designs Considered

The number of shirts that participants considered increased from one for CT (100.0%) to two for MM (50.0%) to three to five for both MP Online and Offline (71.4%). Note a shirt considered in this study is one that is completely designed (i.e., end of the design process for MM and CT shirts).

- CT Results
  100.0% of respondents generated only one complete design.

- MM Results
  50% (5/10) of the respondents generated two complete designs before selecting their final MM shirt. 40% (4/10) designed just one complete shirt. One person prepared between three to five complete designs.

- MP Online Results
  Both respondents looked at three to five shirts.

- MP Offline Results

53.3% (8/12) of respondents examined three to five shirts before deciding on a new MP shirt. 33.3% (5/15) examined six to 10 shirts, while 6.7% (1/15) examined either two or 11 or more shirts.

Time Spent

The MM and CT respondents spent either 11-20 minutes (50.0%) or 21-31 (41.7%) minutes designing their shirts, whereas MP shoppers (both online and offline) shopped for between 11-20 minutes (46.7%). The average shopping times in minutes were MM (19.4), CT (25.3), and MP (17.2), however, if you add the extra average time for additional online or offline store visits (28.6 minutes), then the total time for MP shopping was significantly higher at 45.8 minutes. This time also does not include travel back and forth to the store.

- MM Results

  50% (5/10) respondents spent between 16-20 minutes designing their shirt on the MM website. 30% (3/10) spent 21-30 minutes and 20% (2/10) spent 11-15 minutes on the website. The average time for the group was 19.4 minutes.

  60% (6/10) respondents finished their design within one day. Whereas 30% (3/10) stretched the design over two days (i.e., explored the website, then returned the next day to finish shopping). One person stretched into three days.

- CT Results

  41.7% (5/12) respondents spent between 21-30 minutes designing their shirt with the CT style consultant. 33.3% (4/12) spent 11-20 minutes and 25% (3/12) spent 31-45 minutes with the style consultant. The average time for the group was 25.3 minutes.

- MP Online Time

  One respondent spent 11-20 minutes. Another spent 21-30 minutes. Both respondents browsed other sites for 31-60 minutes and 60-120 minutes. The average additional time for this group was 70.1 minutes.

- MP Offline Shopping Time

  46.7% (7/15) of the respondents spent 11-20 minutes shopping for their MP shirt. 33.3% (5/15) spent 21-30 minutes. 20.0% (3/15) spent between 5-10 minutes shopping. The average shopping time for this group was 17.2 minutes. Nine of the 15 respondents spent time at other store locations before their final store. 44.4%(4/9) of this subgroup spent either 1-15 or 16-30 minutes in the store(s) in which they did not buy. Just one spent between 31-60 minutes. The average additional time for this subgroup was 19.4 minutes.

Travel Distance and Mode

The benefit of utilizing MM is there is zero travel for the customer. CT manufacturers reduce the burden of travel by the customer by arranging office visits by style consultants that typically travel by public transit. In the case, where CT providers ask the customer to visit their office, the carbon benefits decrease especially when the customer drives an automobile. However, most CT providers have locations in business districts near their customers. There is a distinct divide between two groups within MP for travel. One group (11/16) traveled less than 2.5 miles to their retail location, while the remaining group traveled 7.1 miles. Both groups traveled shorter distances than the average American in the general survey. A higher percentage of respondents used a private automobile to shop (56.3%) than to travel to work (25.0%). However, both of these percentages are much lower than the general survey, which has 94.1% using an automobile to shop. This is likely due to the urban location of both offices in this study.

- CT results
  Most respondents lived within 10 miles from their office at 83.3% (9/12). The average distance for this group that lives under 10 miles from work is 5.1 miles. There were individual respondents that live 22, 26, and 44 miles away. The average distance to travel to work for the entire group is 12.1 miles.

  58.3% (7/12) of the respondents traveled to work by public transit. 25% (3/12) used a private automobile. One person used a bicycle to go to work. One person stated "other" as a travel mode including walking or biking in seasonal weather.

- MP Offline results (Includes travel from those that shopped online and offline)
  16 respondents traveled to a retail location to purchase a new MP shirt. The average distance for this group was 7.1 miles. 11 of the 16 respondents traveled less than 10 miles. The average distance for this sub-group was 2.5 miles. 56.3% (9/16) of respondents used a private automobile to purchase their new MP shirts. 31.3% (5/16) walked to a retail location and 12.5% (2/16) took public transit.

Shirt Characteristics

Participants were asked to rank (1-5) the most to least important features when shopping for a new dress shirt. Fabric color and pattern was the most important feature for MC shoppers: MM (60.0%) and CT (75.0%), while fit was most important for MP shoppers (82.4%). Perhaps this is because MC shoppers know they will receive a nearly perfect fit and MP shoppers don't expect good fit. The second most important feature varied with cuffs being important for MM (80.0%) and collars being important for CT (83.3%). The least important for the MC category was buttons, i.e., MM (60.0%) and CT (41.7%). Buttons were also not important to MP shoppers at 40.0%.

- MM Results
  60.0% (6/10) stated that fabric color and pattern was the most important feature. 80% (8/10) stated that cuff style was an important feature. 30% (3/10) stated that accent fabric pattern/color on collar and cuffs were not important. 60% (6/10) said the least important feature was monograms.

- CT Results
  75.0% (9/12) of respondents equally stated that fabric color and pattern as well as size and dimension were most important. 83.3% (10/12) stated collar style was important. 41.7% (5/12) had no opinion on shoulder style. 25.0% (3/12) stated that buttons were not important as well as shoulder style. 41.7% (5/12) stated that monograms were the least important feature.

- MP Online Results
  Both respondents selected fabric pattern/color and size/dimension as the most important features. Important features include accent fabric pattern and color as well as collar style. Fabric material garnered no opinion for one respondent, while cuff style was considered not important. Buttons were the least important shirt characteristic.

  Both respondents that answered this question knew they wanted a shirt in a particular color range or brand. One respondent looked at the top recommendations on the site. Respondents were asked to rate the level of importance for various shirt features (from most to least important). Both respondents selected fabric pattern/color and

size/dimension as the most important features. Important features include accent fabric pattern and color as well as collar style. Fabric material garnered no opinion for one respondent, while cuff style was considered not important. The least important feature was buttons.

- MP Offline Results

  80.0% (12/15) selected size/dimension as most important. 60.0% (9/15) selected fabric pattern/color as important. 46.7% (7/15) had no opinion on buttons whereas 40.0% (6/15) said buttons were not important. Just one person stated that accent fabric pattern/color is least important.

  66.7% (10/15) of respondents knew they wanted a shirt in a particular range or brand. 40.0% (6/15) browsed the entire store. 26.7% (4/15) either asked the sales associate for advice, had someone come with them to go shopping, or had no preconceived idea, but simply knew what they wanted when they saw it. 13.3% (2/15) picked the first appropriate shirt that they came across. Just one person asked the sales person first. 13.3% (2/15) selected "other" which included responses such as 1) trying to spend exactly $100, and 2) asked sales associate to help find a $100 slim fit dress shirt with broad collar. (Participants can select all that apply to answer this question). Study participants were asked to rank from most to least important shirt features. 80.0% (12/15) selected size/dimension as most important. 60.0% (9/15) selected fabric pattern/color as important. 46.7% (7/15) had no opinion on buttons whereas 40.0% (6/15) said buttons were not important. Just one person stated that accent fabric pattern/color is least important.

Fabrics

MP shirts do not allow selection of fabric and other components, thus they are omitted from this comparison and for all component analyses. The majority of both MM and CT respondents examined one to five fabrics with 50.0% for MM and 83.3% for CT. Another commonality between both MC models is the narrowing of choices on pre-determined criteria like color, pattern, shirts already owned with 100.0% response rate from CT and 50% from MM respondents.

- MM Results

  50% (5/10) of respondents examined between one to five fabrics before making a final decision. 30% (3/10) examined 10-20 fabrics, 10% (1/10) examined 5-10, and 10% (1/10) examined 21+ fabrics. The average number of fabrics examined was 9.3 fabrics.

  Participants were allowed to select all reasons for selecting their fabric. 60% (6/10) respondents examined all options before choosing. 50% (5/10) narrowed their selection to a small number of choices based on pre-determined criteria like color, pattern, shirts they already owned, etc. 20% (2/10) selected the first fabric that looked appealing.

  40% (4/10) of respondents stated they spent 6 to ten minutes selecting fabric. 30% (3/10) spent 11-20 minutes. 20% (2/10) spent two to five minutes and one person spent one minute choosing fabrics. The average time for the group was 8.7 minutes.

- CT Results

  83.3% (10/12) respondents examined between one to five fabrics before making a final decision. While 33% (4/12) of respondents examined one to two fabrics and 16.7% (2/12) examined over 11+ fabrics. The average number of fabrics examined was 5.1.

100% (12/12) respondents narrowed their selection to a small number of choices based on pre-determined criteria like color, pattern, shirts they already owned, etc. 25.0% (3/12) of respondents equally examined all options before choosing and asked the consultant what looked good on them. Just one respondent selected the first fabric that looked appealing. (Participants were allowed to select all reasons for selecting their fabric.)

50% (5/12) of respondents stated they spent six to 10 minutes selecting fabric. 25.0% (3/12) spent 11-20 minutes. 16.7% (2/12) spent two to five minutes and one person spent 21-30 minutes choosing fabrics. The average time for the group was 10.6 minutes.

Collar Design

MM participants considered more collar designs (80.0% of the field considered two) than CT participants who were more diverse (41.7% with one and 33.3 with two). 50.0% of MM participants selected collars similar to their wardrobe, whereas 50.0% CT participants chose a collar that the style consultant suggested. Also, 41.7% of CT participants selected collars that were different than what they already owned. It appears that the style consultant played a significant role in the use of contrast collars (66.7% for CT vs. 40.0% for MM).

- MM Results

  80.0% (8/10) of respondents considered two different collar designs. One person examined three to five and one person only examined one possible collar design.

  50.0% (5/10) chose a collar that was similar to what they have in their wardrobe. 30% (3/10) knew in advance which specific collar they wanted. 20% (2/10) choose the first collar that was appealing. 10% (1/10) chose a collar that was different than what they already owned. (Participants were allowed to select all the reasons that applied).

  60.0% of respondents did not choose a contrast collar. Four of these six respondents continued to answer questions about their contrast collar. 50% (2/5) examined three to five contrast fabrics, whereas 25% (1/4) examined either one or two fabrics. 50% (2/4) spent two minutes, while 25% (1/4) spent either one minute or six to 10 minutes on contrast fabrics.

- CT Results

  41.7% (5/12) considered just one collar design. 33.3% (4/12) considered two different collar designs. 16.7% (2/12) considered three collar designs. One person examined 4+ designs.

  50% (6/12) chose a collar that the style consultant suggested. 41.7% (5/12) chose a collar that was different than what they already owned. 25.0% (3/12) knew in advance which specific collar they wanted. 16.7% (2/12) chose the first collar that was appealing. 8.3% (1/12) chose a fabric collar that was similar to one that they liked from another online or offline retailer. Similarly, 8.3% of respondents equally chose a collar different from the ones on shirts that they already owned as well as "other." Other responses included choosing a collar to fit the size of ties he normally wears.

  66.7% (8/12) of respondents choose a contrast collar. The eight respondents that chose a contrast collar continued to answer additional questions. 62.5% (5/8) considered two fabrics, while 25.0% (2/8) considered three to five fabrics. Just one respondent considered more than 11+ contrast fabrics. 37.5% (3/8) spent two minutes choosing

contrast fabrics. 25.0% (2/8) equally chose three to five and six to 10 minutes. One respondent spent more than 11+ minutes considering contrast fabrics.

Placket Design

CT participants considered slightly more placket designs (two at 50%) than MM participants at (41.7%).

- MM Results
  60% (6/10) of respondents considered only one type of placket in their design. 30% (3/10) considered two fabrics and just one person considered three.

- CT Results
  50% (6/12) of the respondents considered two types of plackets in their design. 41.7% (5/12) considered just one placket design. Just one person considered three different placket designs.

Cuff Design

Both groups considered two designs at roughly the same percentage: 50.0% (MM) and 58.3% (CT). Just like collars, CT participants were influenced by the style consultant for cuff design with 58.3% choosing the cuff that consultant recommended. Whereas the 80.0% of MM participants selected a cuff similar to what they already owned (only 33.3% of CT participants did that). Both groups considered contrast cuffs at roughly the same rate (66.7% CT vs. 70.0% MM).

- MM Results
  50.0% (5/10) of respondents considered two cuff designs. 30% (3/10) considered one, while 20% (2/10) considered three cuff designs.

  80% (8/10) chose a cuff that was similar to what they already owned in their wardrobe. 40% (4/10) knew in advance the specific cuff they wanted. One person chose a cuff different to ones on shirts that they already owned. One person chose the first cuff that was appealing. (Participants were able to select all that applied).

  70% (7/10) considered a contrast cuff. Three of the seven continued to answer questions about contrast cuffs. 66.7% (2/3) spent three to five minutes on the contrast cuff, while one person spent two minutes. The field was split evenly in the number of fabrics considered (2, 3-5, and 6-10).

- CT Results
  58.3% (7/12) of respondents considered two cuff designs. 16.7% (2/12) of the respondents considered either one or three different types of cuffs. One person considered four or more cuff designs.

  58.3% (7/12) chose a cuff that the consultant recommended. 41.7% (5/12) knew in advance the specific cuff they wanted. 33.3% (4/12) chose a cuff that was similar to what they had in their wardrobe. 16.7% (2/12) chose a cuff similar to what they already owned in their wardrobe. Just one participant selected the first cuff that was appealing, while another participant selected a cuff because the participant liked it from another online/offline MP retailer. (Participants were allowed to select all that apply to answer this question).

66.7% (8/12) considered a contrast cuff. Eight of the 12 continued to answer questions about contrast cuffs. 37.5% (3/8) of the respondents equally considered either two or three to five contrast fabrics. Just one person considered 11+ fabrics. 37.5% (3/8) of respondents spent just one minute selecting contrast fabrics. 25.0% (2/8) spent an equal amount of time selecting fabrics for either two minutes or three to five minutes. Just one person spent more than 11+ minutes.

Button Selection

Both groups considered an identical number of buttons; however, the style consultant heavily influenced CT participants. 83.3% of CT participants chose the button the consultant recommended, whereas 50.0% of MM participants selected buttons similar to what they already owned. Only 16.7% of CT participants chose similar buttons.

- MM Results

  50% (5/10) of the respondents considered two different buttons. 40% (4/10) considered only one button and one person examined three to five buttons. 50% (5/10) chose a button that was similar to what they already owned in their wardrobe. 40% (4/10) selected the first button that was appealing. One person chose buttons that were different than those in their wardrobe and one person selected "other" which included choosing a button that matched well with the fabric.

- CT Results

  50% (6/12) of the respondents considered two different buttons. 41.7% (5/12) considered only one button and one person examined three to five buttons.

  83.3% (10/12) chose a button that the style consultant selected. 16.7% (2/12) equally selected a button similar to what they had in the wardrobe or chose the first one that was appealing. Just one person knew in advance the specific button that they wanted.

Shoulder Design

Shoulder design did not consume much time (less than two minutes) or design consideration by both MM and CT participants.

- MM Results

  80% (8/10) of the respondents considered only one shoulder design. One person considered two designs and one person considered three. 80% (8/10) spent one minute on the shoulder design, while the remainder spent two minutes.

- CT Results

  100% (12/12) of the respondents considered only one shoulder design. All of them spent just one minute on this task.

Sizing, Measurement Tools, and Trying on Shirts

Making direct comparisons is difficult in this case because measurements in the CT case are taken by a professional style consultant and the are basically "automatically" done in the session, whereas MM measurements are done via proxy through "smart tools." 50.0% of MM participants entered exact measurements, which may have come from experience, data from a tailor, or from existing shirts. 60.0% of MM participants felt confident about their purchase without trying on the shirt. In comparison 40.0% of MP Offline participants did not try on their shirt before purchasing.

- MM Results (Measurements and Online Tools)

60% (6/10) of the respondents used "Smart" measurement tools provided by the website. 30% (3/10) either used the "hint box" or did not use any tools. 30% (3/10 used comparable sizing or the "help box." (Participants were able to select all that applied).

Participants were asked to rank (1-5) the most to least useful measurement methods. 50% (5/10) of the respondents stated that they thought that entering exact measurements is most useful. 40% (4/10) thought that "ask of tailors" was somewhat useful. 90% (9/10) did not send in a shirt. 50% (5/10) did not measure their best fitting shirt. 80% (8/10) did not use other methods.

40% (4/10) of the respondents spent between 6-10 minutes on sizing, while 30% (3/10) spent 11-15 minutes. 20% (2/10) spent three to five minutes and one respondent spent just two minutes.

60% (6/10) were confident about the fit without the opportunity to physically try on the shirt.

- MP Offline
  60.0% (9/15) physically tried on a shirt in the store before purchasing. Of the nine who tried shirts, 55.6% (5/15) tried just one shirt. 33.3% (3/9) tried two shirts and just one respondent tried between three and five shirts.

Design Process

The influence of the style consultant dramatically changed the design process. The majority (80.0%) of MM participants did not design in a linear fashion and revised their designs, whereas only one CT participant (8.3%) revised his design. In both cases the revisions were mostly because of color matching.

- MM Results
  80% (8/10) respondents did not design in a linear fashion (i.e., after designing later parts, they went back to revise earlier design choices they made). The eight respondents that revised their designs then answered additional questions on their process. 37.5% (3/8) of the respondents made changes after making fabric color and pattern choices. 25.0% (2/8) equally make revisions after selecting either buttons, monogram, fabric material, collar style, and sizing. Just one person made changes after deciding on cuff style. (Participants were allowed to select all that apply on this question).

  62.5% (5/8) of respondents made changes because of color matching (i.e., matching the main body color and accent color). 37.5% (3/8) made changes when they were nearly finished with the design, but felt the whole design needed some tweaking. 37.5% (3/8) stated "other" reasons for making changes including 1) found the interface confusing and discovered more options, 2) felt the sizing was not correct and made corrections, and 3) checked other sites for the latest fashion advice on monograms and changed the design based on new information.

- CT Results
  Only 8.3% (1/11) participants went back to revise earlier designs when working with the style consultant. That one person went back to change the accent fabric pattern and color for the cuff, placket, and or collar. The main reason was to match the main body color with the accent color.

Influence Factors

Below are the survey results focused on influence factors such as assistance from friends, family, or sales associates and the use of Smart Phones. CT participants were not asked this question since they primarily interacted with the style consultant. About 30.0% of MM participants received assistance (primarily from a spouse) during the design of their new MM shirt. This is similar to the 35.7% of MP Offline participants who were convinced or influenced by the store's sales associate. A majority of MP Offline participants received help from the sales associate (73.3%) and had someone accompany them (53.3%). They either received help with measurements (65.5% from sales associates) or feedback (87.5% from friends/family) on their selections. The impact of Smart Phones was minimal. However, the sample size is too small to determine the actual influence of new communication technology.

- MM Results

  70% (7/10) of the respondents designed the shirt completely without any assistance from friends, family, or others. Three respondents continued to answer questions about outside influence. Two respondents stated that their spouse helped in the design. One stated "other" which included helping others with measurements within the study (same office).

  Two respondents stated that the person who assisted them also provided feedback on the completed shirt design, while one stated that they helped with selection options in the design process such as cuffs, plackets, buttons, etc. One person received help with measurements. (Participants were allowed to select all that apply to answer this question).

- MP Offline Results

  35.7% (5/14) of respondents were convinced or influenced by the store's sales associate. 28.6% (7/14) had no other factors, while 21.4% (3/14) knew that their significant other would appreciate certain colors and features so they chose them. 14.3% (2/14) purchased a shirt to fit office dress code and norms. 7.1% (1/14) were equally under time pressure, so they picked the first appropriate shirt they found or saw an appealing shirt in a window display and purchased that one. 50% (7/14) respondents provide "other" factors that included 1) own wants and needs, 2) looking for something different, 3) looking for style of shirt to create variety in wardrobe, 4) looking for a wrinkle-free and slim cut, 5) sticking to target cost, 6) looking for a specific brand that fits well.

- MP Offline Results (Sales Assistance)

  73.3% (11/15) received help from a sales associate. The 11 respondents that received help were either assisted in finding their size at 65.6% (7/11), while 36.4% (4/11) were provided style opinion. 27.3% (3/11) received help choosing shirts to try. Just one respondent received help in making final decisions. 36.4% (4/11) selected "other" which included responses like 1) discussed care for shirts and received help to pick out ties, 2) help with finding the most expensive shirts, 3) help with measuring neck, and 4) calling another store for availability in his size.

- MP Offline Results (Friends/Family Assistance)

  53.3% (8/15) of respondents had someone accompany them during their shopping experience. Of those eight respondents 75.0% (6/8) would bring their spouse to go shopping. 37.5% (3/8) brought "others" including daughter, son, and fiancée. Just one respondent brought another family member. 87.5% (7/8) of these respondents stated that

the family/friend provided feedback on the selections they made. 37.5% (3/8) stated that they helped make selections and one respondent said the friend/family member had no influence. (Participants were allowed to select all that apply to answer this question).

- MP Offline Results (Smart Phone Influence)
  93.3% (14/15) did not utilize a smart phone during their offline shopping experience.

- MP Online and Offline Results
  50.0% (2/4) of the respondents had to conform to an office dress code and norm, so they selected a shirt that would work well for the office. One respondent saw an appealing window display and purchased what they saw in the window. Another respondent liked designs shown on a retail website and purchased a similar shirt. Two respondents also selected "other" as influential factors, which included 1) value (price vis-à-vis features: contrast, double cuff, slim fit), and 2) simply looking for a shirt they liked.

Matching Factors

The majority of all participants considered their wardrobe when making purchasing decisions with MM at 70.0%, CT at 91.7%, and MP Online and Offline at (100.0%). Pants were the most important matching item for all groups including MM at 57.1%, CT at 63.6%, and MP at 66.7%. The second most important matching item varied for each shirt type.

- MM Results
  70% (7/10) of the respondents stated that they considered their existing wardrobe when designing the new MM shirt. These seven participants then continued to answer questions about matching. 57.1% (4/7) stated that the ability to match with pants was important. 42.9% (3/7) stated shoes. 28.6% (2/7) stated equally that suits, jackets, and ties were considered. One person considered the matching of cufflinks. 28.6% (2/7) stated "other" as matching criteria including other shirts in their wardrobe.

  Those respondents that did not match with their wardrobe stated that they don't coordinate their clothing (two respondents). One of the respondents stated that they don't typically buy their own clothing, so it was not a consideration. One participant said it was a free shirt, so it did not really matter. Another respondent selected "other" including the desire for a shirt that was neutral to his existing pants.

- CT Results
  91.7% (11/12) of the respondents stated that they considered their existing wardrobe when designing the new MM shirt. These 11 participants then continued to answer questions about matching. 63.6% (7/11) stated that the ability to match with pants was important. 45.5% (3/7) stated jackets, 36.4% (4/11) stated suits, and 18.2% (2/11) stated shoes. Just one person, 9.1% (1/11) equally selected either ties or socks. 27.3% (3/11) stated "other" as other matching items which included colors that were not already in their wardrobe.

- MP Offline Results
  100.0% (15/15) of the respondents considered their wardrobe when shopping for their new MP shirt. 66.7% (10/15) selected pants as a key matching item. 33.3% (5/15) selected suits, while 13.3% (2/15) selected shoes. Just one respondents selected jackets. 26.7% (4/15) selected "other" shirts in their wardrobe.

- MP Online Results

Both respondents did consider their existing wardrobe when considering this new MP shirt. Suits and "other" was selected as matching items to consider.

Overall Shopping Experience

Below are the results from overall shopping experience. It is difficult to compare the results, as the shopping experiences are very different from each other, however, conclusions within each category provide some insight on consumer behavior.

- MM Results

  Participants were asked to rank (1-5) if they strongly agree to strongly disagree with the accurateness of several statements of their online experience. 20% (2/10) strongly agreed that they would use this process for subsequent orders. Another 20% also agreed that they were confident of their shirt design and aesthetics without physically touching or feeling the design first. 50% (5/10) of the respondents agreed that this process required less effort than shopping at a store. Another 50% agreed that they would use this process again. 40% (4/10) neither agreed or disagreed that the shirt they designed would not have been chosen at a conventional store. 50% (5/10) agreed that they were confident in their designs without physically seeing or touching their designs before they were made.

- CT Results

  Participants were asked to rank (1-5) if they strongly agree to strongly disagree with the accurateness of several statements of their CT design experience. 100% (12/12) agreed that they mostly accepted their style consultant's recommendations. 25.0% (3/12) neither agreed nor disagreed that their consultant recommended design choices that they would have not chosen themselves. 33.3% (4/12) disagreed with that same statement. 33.4% (4/12) strongly disagreed that they sought advice from the other customer in the room during the consultation.

- MP Online Results

  Study participants were asked to rate a number of statements about their shopping experience from strongly agree to strongly disagree. One respondent strongly agreed that they were able to find a shirt comparable to the custom shirt they already designed earlier. One respondent stated that he strongly agreed that he would rather shop online than to go to a physical store. Both respondents agreed that they were both not concerned about purchasing a shirt that they were unable to try. One respondent neither agreed nor disagreed that they were able to find a comparable shirt to the MC shirt they designed earlier in the study.

- MP Offline Results

  Respondents were asked to rank from strongly agree to strongly disagree on a number of statements about their overall shopping experience. 40.0% (6/15) strongly agreed that it was important to see and try on the physical shirt. 46.7% (7/15) agreed that they were able to find a comparable shirt to the custom shirt that they already designed from earlier in the study. 26.7% (4/15) neither agreed nor disagreed that they would rather go shopping at a physical store than online. 33.3% (5/15) disagreed that they were able to find a comparable shirt than the MC shirt designed earlier in the study.

Typical Price

The average price fluctuated between $58.67 to $78.55 in this small sample size (21), but was much higher than the average price of $39.39 for the general survey (267 respondents).

- MM Results
  50% (5/10) of respondents typically purchase shirts between $40-59, while 20% (2/10) typically pay between $20-39. The remaining 10% (1/10) of respondents equally paid between $60-99, $100-199, and more than $200. The average price of a typical shirt for this group is $78.55.

- CT Results
  33.3% (4/12) of respondents equally paid between $20-39 and $40-59 for a typical shirt for work. 25.0% (3/12) paid between $60-99. Just one person paid between $100-199. The average price for a typical shirt in this group is $58.67.

- MP Online Results
  One respondent normally spends between $20-39, while the other spent between $40-59.

- MP Offline Results
  40.0% (6/15) of respondents paid between $40-59. 33.3% (5/15) paid between $20-39. 13.3% (2/15) paid between $100-199. One respondent paid either $60-99 or more than $200. The average price for this group is $71.53.

Product and Customer Satisfaction

Participants were asked to rank their satisfaction with their purchased product (most satisfied = 1, least satisfied = 5). The majority of MP offline and online participants were most satisfied (rating of 1) with their purchases (58.8%); however, slightly less than half (47.1%) have would not purchased a similar shirt with their own money. This is in stark contrast to the MM and CT participants that anticipated a less satisfied result – 40.0% of MM participants were neutral and 50.0% anticipated just a satisfied result – yet, the majority would have purchased a similar shirt with their own money at 70.0% for MM participants and 83.3% of CT participants. Perhaps the possession of the MP shirt in hand allowed MP participants to rate satisfaction higher and the unfamiliarity and uncertainty of MC shirts created reservations on the part of MC participants.

- MM Results
  Participants were asked to anticipate how happy they would be with their new MM shirt using a ranking scale (1-5). This can then be compared with their responses in the end-of-study interview. 40.0% (4/10) of the respondents were exactly in the middle (rating of 3). 30.0% (3/10) expected to be very satisfied (rating of 1) with their new MM shirt. 20.0% (2/10) expected to be very satisfied. Just one person expected to not be satisfied at all (rating of 5). 70.0% (7/10) of the respondents stated that they would have purchased a similar shirt with their own money.

- CT Results
  50.0% (6/12) anticipated a rating of 2 (satisfied) with their new CT dress shirt. 33.3% (4/12) expected to be most satisfied (rating of 1). 8.3% (1/12) of respondents equally anticipated to be neutral (rating of 3) or less satisfied (rating of 4). 83.3% (10/12) of the respondents stated that they would have purchased a similar shirt with their own money.

- MP Online Results
  Both respondents expected to be most satisfied with their purchase once they received it in the mail. Both respondents stated that they would purchase a similar shirt with their own money.

- MP Offline Results

53.3% (8/15) of the respondents were most satisfied. 33.3 % (5/15) stated they were satisfied (rating of 2). One respondent either stated 4 or 5 (least satisfied) with their new shirts. 53.3% (8/15) of the respondents stated they would not purchase a similar shirt with their own money.

### 5.8 MP Online and Offline Additional Survey Results

Number of Stores or Websites
MP offline respondents typically visit more retail locations than online participants.

- MP Online Number of websites
  Two respondents looked at only one website. One respondent shopped with +4 websites.

- MP Offline Number of Stores
  42.9% (6/14) of respondents visited more than 4 stores before purchasing their new shirt. 28.6% (4/14) only visited one store. 14.3% (2/14) equally visited either two or three retail locations. The average number of stores for this group was 2.7.

Store Selection and Motivation
Both MP Online and Offline participants went to familiar retail locations because they have shopped there before and they were conveniently located. 40.0% of MP Offline participants went to their favorite mall and 33.3% went there because it was close to their home.

- MP Online Results
  Just two respondents answered questions on motivation for going to a particular site. At least one respondent selected each of the following: "I have shopped there before, I bought from the physical store before, so the website would work for me, the website was easy to use and well designed, it is a well known website, a friend told me about it, my peers shop there, the website carried brands I like, this website received good reviews." None of the respondents found the site through a search engine nor saw advertising for the site.

- MP Offline Results
  60.0% (9/15) of respondents were motivated equally to shop at this location because they have shopped there before or that it was a well-known store. 40.0% (6/15) went to their favorite mall. 33.3% (5/15) went because it was close to their home. 26.7% (4/15) went to this store because it carried brands they liked. Just one respondent went because the store received good reviews. 26.7% (4/15) selected "other" as motivations which included: 1) could easily walk from work, 2) good selection and service, 3) browsed there before, but never purchased there, and 4) wife's suggestion. (Participants were allowed to select all that apply to answer this question).

MP Offline Why Not Purchase
55.6% (5/9) of the respondents did not like the store selection. 22.2% (2/9) stated it was too expensive. Just one respondent stated that the store did not have the brands they liked nor did they have his size. 44.4% (4/9) selected "other" as reasons why they did not purchase which included 1) crowded store, 2) clearance sale did not have good selection, 3) too cheap for study target price, so they moved to another store.

MP Additional Purchases
Only two respondents purchased something else on their trip.

- MP Online additional Purchases
  Both respondents did not buy anything else.

- MP Offline Additional Purchases
  Just two respondents purchased something else during their shopping trip. One person bought another shirt, ties, or cuff lines. (Participants can select all that apply to answer this question). 68.8% (11/16) of the respondents went somewhere else in addition to their final shirt retail location. Four of those 11 respondents stated they went to a restaurant on their trip as well.

MP Online and Offline Shopping
Four of the 21 study participants shopped both online and offline for their new MP dress shirt. Their retail decisions are integrated either into the online or offline analysis based upon which mode they finally used to make the purchase. For example, if the participant started with online shopping, but purchased in an offline physical store, then those decisions are reflected in the offline MP analysis. The results below discuss the order of shopping mode (online then offline or offline then online), number of stores, and the relationships between online and offline retail.

MP Online and Offline: Order of Visits
Three of the four respondents answered questions about online and offline shopping. Two of these three shopped online first, and then purchased offline. The remaining participant shopped offline first, then ultimately purchased online. The two participants that shopped online first shopped at two and three websites respectively.

MP Online Then Offline
One of the two respondents that shopped online first spent one to 15 minutes shopping online. The other respondent spent 16-30 minutes. Both decided not to purchase because they wanted to either try the shirt on first or touch the fabric. Both participants visited just one retail location after shopping online.

MP Offline then Online
The one respondent that shopped offline then online visited 4+ retail locations before shopping online. He traveled six miles (round trip) to the offline store and spent between 31-60 minutes shopping at retail stores. He used public transit and visited a restaurant for drinks as well as a pharmacy on his way. He chose not to purchase shirts because the store had the shirt he wanted, but not in his size. He also used a Smart Phone to help him with his shopping and it was influential in his decision-making. This respondent also visited 4+ websites before making his purchase online.

### 5.9 Optional Questions

Participants were asked to write 1-2 paragraphs on their overall experience for each retail experience. To help them answer this question we asked: Was the process fun? Was it what you expected? Was it stressful? Too limited? Too many choices?

The sample text below from the MM, CT, MP Online and Offline retail experiences point to a number of key findings. The first is that the MC experience is generally "fun" for most participants reinforcing the additional perceived benefits discussed in Chapter 1 including utilitarian value,

self-expressiveness, creative achievement and ultimately hedonic value acquired from enjoyment, fun, and pleasure. The second finding is that $100 dress shirt is an arbitrary retail value that was difficult for some participants to shop with as a "target price." Many participants typically pay less and some paid more, thus necessitating them to either upscale or downscale to meet the shirt acquisition requirement. The $100 value was set in order to provide the necessary level of customization for the MC shirts. Setting this equal to the new MP shirt was also necessary to have a direct comparison. In future studies, it may make sense to set the price level similar to what participants normally pay for their products. The third factor was the amount of time devoted to the shopping experience. Some participants felt that they needed more time than the task allowed, that they didn't have much time in their lives, or that the process was inefficient. In the case of MP, several participants felt the choices were too limited (and even one person said that MM was too limited). Interestingly, one participant found the MC experience educational, but would not shop with a CT again and focus on either MP Online and MM in the future.

Below is a sampling of key statements:

MM Results (*Quotes from Participants*)
Nine of the 10 participants answered this question.

*It was easy, fun, and no hassle. I did have to call in and make sure I had the right shirtsleeve length, and the associate on the phone was very helpful.*

*It was a lot of fun – trying different fabrics and making other choices. I definitely couldn't have found the same exact combination in a conventional store.*

*I enjoyed the process. Some doubt over my shirt size, (e.g. arm length) but no more so than looking at packaged shirts in the store. I think I want to be able to control the fabric type and color individually, but not sure I could that.*

*I loved it at first – playing with the designs, configuration options, etc. was a blast. Then, as I got to the end, I realized that I would actually have to wear the shirt I made and that it cost $100, so it should be something I would actually like and wear regularly. That meant I needed to reduce the risk of it being "weird" in any way, so I went back and made more conservative choices. I did add a message to my inside collar - that seems like it will be a cool custom "secret" that only I know is there. I like that. The sizing process was also tough. I don't have any shirts that are perfect fits, so I asked for help. I was given specific sizes that I went with, but I am still waiting for the results. Fingers crossed!*

*The sizing tools were helpful. The process was easy and I felt that by "designing" the shirt myself I was getting a shirt unique for me.*

CT Results (*Quotes from Participants*)
Nine of the 12 participants answered this question.

*It was interesting, but I certainly felt "crunched" for time. Typically, I try to be mindful of a tailor's time, &, in this case, given the overall circumstances, I felt particularly sensitive to just moving the process along for the tailors. Invariably, with my own money, the time with the tailor would've been different, and I'd be more certain about my choice now. As it stands, I'm currently in a mode of, "I guess we'll see how it turns out" mode awaiting the tailored shirt.*

*It was enjoyable. I just don't have the time or money to buy my clothing this way.*

*It was certainly fun, but it did feel a little rushed. I found the choice of patterns a little limited, especially in terms of colors; and it was hard to extrapolate from the swatch to imagine what a finished shirt would look like. The consultant was helpful when I found it difficult to make a decision.*

MP Online Results (*Quotes from Participants*)
Both participants in this group answered this question.

*The visit with the custom shirt individual prior to going online helped me be an informed online purchaser with regards to the different parts of a shirt (collar spread, cuffs, pocket/no pocket, etc.). Once given the "education" I don't see a need to go back to the custom tailor again. Online shirt shopping was quick and easy. It was much more streamlined of a process than I thought it would be.*

MP Offline Results (*Quotes from Participants*)
11 of the 21 Participants answered this question.

*Pink has a good customer service reputation. The trick was finding a shirt that fit inside the $100 budget.*

*It was not pleasant experience. It was hard to find shirts in the styles I like. Most of the shirts were low quality. I was surprised you can't buy a shirt for $100 at the mall. Most shirts were also of a style I am not used to, which is tight fit, no iron.*

*Enjoyed browsing. Know exactly what size I need, (16.5, 34/35) but often find shirts that are only offered in S, M, L, XL which usually don't fit. I would normally shop for more expensive shirts on sale for less than $100. Finding a shirt that cost just $100 was an artificial constraint that limited my options significantly.*

*It was eye-opening. I had to go to stores I don't normally go to find the shirt in the right price range. After a bit of that, $100 didn't seem like much money at all, in one sense – the shirts I really liked outside my normal store often cost over $500. On the other hand, I also found a lot of really cheap shirts that would have been okay. It was stressful. In the end, it was great to go to a store with a wide selection that I knew would have precisely my size, even though I found the shirts a little too boring.*

*In-store experience was easy, mostly because I pre-shopped online first.*

### 5.10 Summary of Shirt Acquisition and Follow-up Survey Results

The chapter focused on gathering detailed information about the shopping behavior of the 18 participants in Experiment I. A number of comparisons can be made with the results from chapter 4 (Quantitative Survey of Patterns of Shirt Usage and Ownership), particularly in the areas of wardrobe composition, travel distance and mode, and average price. Influence factors like family/friends, office culture, and the impact of the style consultant were explored in depth in this chapter and cannot be compared to the results of the Quantitative Survey. Also examined in this chapter were each participant's design strategy, design process, and overall thought process for

both MP and MC shirts. The next chapter will discuss patterns of use for the 18 participants, which can be compared to some aspects covered in the quantitative survey.

Just two of the 18 participants in Experiment I had owned MC shirts previously. One had owned one CT shirt, while the other participant had owned a majority of CT shirts (17 CT, 12 MP). In comparison to the general public, this group owned less MC shirts at 11% vs. 24.3%. However, the MP + CT participant owned so many CT shirts that in aggregate that MC percentage for this group was probably higher. This group travelled much less to purchase their MP shirts. Two distinct groups formed during the trips. The first group (11/16) travelled less than 2.5 miles, while the remainder (5/16) travelled an average distance of 7.1 miles. In both cases, this was much less than the national average of 8.2 miles. Also, the automobile was used much less at 56.3% vs. the 94.1% in the Quantitative Survey. It is likely that the urban location of this study greatly reduced travel distances and shifted travel mode to transit and walking. The average price of shirts ranged from $58.67 to $78.55 in this small sample size (18), but was much higher than the average price of $39.39 for the general survey (267 respondents).

The influence of the office culture as well as family, friends, and the style consultant had a significant impact on how decisions were made by participants. The majority (87.5%) of MP offline participants were given feedback or assistance from family or friends, while 53.3% had someone accompany them on the shopping trip. 65.5% of the MP offline respondents also received help from the sales associate. The influence of family or friends was still fairly high for MM at 30.0%. The influence of the CT style consultant was very significant. 100.0% of the participants mostly accepted their style consultant's recommendations. Over half of the respondents stated that their style consultant was very convincing and/or influential at 58.3%. Office dress code and culture also played a factor in purchasing decisions in all models except MP offline at 40.0% for MM, 50.0% for CT, and 100.0% MP Online. The one deviation in design strategy between MC and MP was that CT and MM participants expressed a strong desire to design something unique (60.0% and 66.7% respectively) whereas MP respondents were looking to purchase a shirt similar to what they already had in their wardrobe.

Fit was even more important to MP participants in Experiment I at 82.4% as opposed to the 38.4% in the general survey. Interestingly, fabric color and pattern was most important for MM (60.0%) and CT (75.0%) shoppers. Perhaps this became important because they assumed fit was already a given with a custom shirt. The second most important feature was cuffs for MM (80.0%) and CT (83.3%) while buttons were universally not important for all groups.

Some barriers for MC growth were also studied, including the inability to touch, feel, or try on shirts. This is particularly a problem for MM, since CT retailers will bring fabric swatches with them to a consultation. 40.0% of MM participants did not feel confident about their purchase without trying on the shirt; while 50.0% agreed that they were confident in their designs without physically seeing or touching their designs before they were made. Interestingly, 40.0% of MP Offline participants did not try on their shirt before purchasing even though they had already made the effort to go to a physical store.

Finally, the optional questions section of the survey allowed participants to reveal freely their thoughts about Experiment I. The majority of participants enjoyed the "fun" in designing a MC shirt, thus reinforcing the perceived benefits discussed in chapter 1. The second common critique was that the target price of $100 for the new MP shirt was difficult to obtain as many shirts are either higher priced (+$150) or lower ($50-75). The last factor was the amount of time spent. It was too short, as some participants felt they needed more time, especially for CT.

Overall, the results from Experiment I show that any deviation from the General Quantitative Survey were mostly because of regional differences based on the site of the experiment (urban

and high density) and the higher standard of living in the Boston area. The influence of others external to the shopper was also a significant factor in the decision making process.

# Chapter 6

# Experiment II: Shirt Tracking and Use Patterns

## 6.1 Goal of Experiment II

The primary goal of this experiment is to the determine shirt usage patterns of each study participant after the shirt acquisition phase of the study. The data gathered in the experiment can then be analyzed to compute the utilization rates for new shirts (MM, CT, MP Online, and MP Offline) and existing shirts in each participant's wardrobe. The use rate of each individual shirt can be compared to the ideal use rate which is equivalent to the percentage composition of the overall wardrobe. For example, if a study participant has 10 shirts in their wardrobe, then the ideal use rate would be 10% – each shirt would be worn one time, cleaned, and only worn again after the rest of the wardrobe (i.e., 10 different shirts in 10 days). If one of these shirts is worn twice within 10 days, then the use rate for that shirt is 20% (worn two times in 10 days) or 10% more than the ideal use rate, thus providing greater utilization than other shirts in the wardrobe. This experiment will determine the overall use rate and other patterns of use such as most frequently worn, least frequently worn, shirts not worn, etc. These patterns can then be correlated to the characteristics of those shirts such as brand, sizing, material, and level of customization, therefore providing an assessment of the environmental utility of different shirt types.

### 6.2 Thesis Time Line (Chapter 6)

| Chapter 3 | Chapter 4 | Chapter 5 | **Chapter 6** | Chapter 7 |
|---|---|---|---|---|
| Environmental Impact Analysis of MP and MC | Quantitative Survey of Patterns of Shirt Usage and Ownership | Experiment I: Shirt Acquisition and Follow-up Survey | **Experiment II: Shirt Tracking and Use Patterns** | Conclusion |
| Desk Research | 750 Respondents (276 used in analysis) | 18 participants | 18 participants | All Respondents and Participants |
| Interviews with MC and MP shirt makers | Survey of Shirt Owners of: MP and MC shirts | Acquisition of new shirts: 8 Made-to-Measure (MM), 10 Custom Tailored (CT), and 18 MP | Shirt Cataloging and Shirt Tracking (60 days of shirt data) | Data Visualization and Analysis |
| Oct 15 (2009)-Aug 31 | Jun 15 - Dec 22 | Acquisition + Survey (Feb 16-Mar 16), Design of Tracking System (Oct 15-May 7) | Cataloging (Apr 13-23), Tracking (May 7-Aug 31) | Aug 1-31 |
| 2009 to 2012 | 2011 | 2012 | 2012 | 2012 |

***Table 6-1.*** Thesis time line (Chapter 6).

### 6.3 Design of Experiment

The experiment was designed in four parts. The first part was to gather all of the dress shirts that the participants wear for work (maximum of 30), to secure tracking technology onto each shirt, to catalog the characteristics of each shirt, and then return them back to the participants. The second component required the design, testing, and installation of the tracking system into both office locations. The third task was to collect shirt-wearing data for a period of 60 working days and to monitor the tracking system to assure accurate and reliable data. The fourth and final task was to analyze the data and to visualize use patterns with respect to environmental benefits. The table below describes the four major elements comprising Experiment II:

| **Shirt Cataloging** | **Tracking System** | **Shirt Tracking** | **Exam Results** |
|---|---|---|---|
| Collect, tag, enter data, photograph, verify, and return shirts | Design, build, test, and deploy Tracking System | Collect 60 days of data | Analyze and Visualize Data |
| April 13-23 | Oct 15 - May 7 | May 7 - Aug 31 | Aug 1-31 |

***Table 6-2.*** Experiment II components.

The experiment was designed to ensure accuracy and reliability in tracking shirt use as well as compliance on the part of the study participants. Tracking accuracy was vital in determining the actual shirt being worn by each individual participant, while reliability was key to reducing any

down time in the system during the data collection phase. The experiment was also designed so that participants would easily comply with our tracking requirements and continue with the experiment throughout the whole tracking period. The use of Radio-Frequency Identification (RFID) was critical to the experiment because the low cost and unobtrusiveness of the technology helped to ensure accuracy and compliance. The selection of two office locations greatly reduced costs since we could track half of the participants with two RFID readers at the entrance and exit of each office. This greatly reduced the costs and complexity that would have been incurred if we had deployed multiple readers at each participant's home.

### 6.4 Technologies (RFID)

A number of other technologies besides RFID were explored including Quick Response (QR) codes, Near Field Communication (NFC) enabled Smart Phones, and simply asking the participants to take notes on a calendar. QR codes were eliminated because of the difficulty of printing QR codes onto washable fabric tags (loss of accuracy), the requirement of having a Smart Phone for each participant that could read QR codes, and the need to scan the QR code each day (making compliance difficult). NFC enabled phones were cost prohibitive to provide for each participant and they required the active intervention of the study participant through a cell phone application that needed to be written. Note taking on a calendar would be inexpensive, but compliance and accuracy would be compromised. Thus, RFID was soon identified as the enabling technology.

The use of RFID tags that could be read up to 10 feet allowed us to design a tracking system composed of 1) RFID reader, 2) RFID Antennae, 3) plug computer, 4) LED indicator lights, and 5) washable, cleanable, and iron-proof RFID tags. These major components would be integrated into a freestanding tower that could be placed at the entrance and exit doorways to ensure proper readings. Below is a description of each of the components:

RFID Reader

This study utilizes the Vega RFID reader from ThingMagic, which possesses three reverse-TNC antenna ports supporting monostatic 50-Ohm antennas that allow for multiple antennas (It was important for Technology Review's office to have one reader with two antennas in the front entrance). The Vega reader has a 9-pin serial connector support RS232 and two general-purpose inputs and one output. Below is photo of the ThingMagic Vega:


***Figure 6-1.*** ThingMagic RFID Vega reader (Source: ThingMagic).

RFID Antennae

The MTI MT-262024/TRH/A/K (RHCP) Outdoor RFID Antennae is utilized in this study. It has an input impedance of 50 Ohm, a read distance of up to 10+ meters, and a frequency range between 902 – 928 MHz. Below is an image of the antennae:

***Figure 6-2.*** RFID antennae (Source: Wireless Edge LTD.).

Plug Computer

The D2Plug Computer by Globalscale Technologies running Ubuntu possessed all the computational functionality including wireless capability required for this experiment. The compact size allows for the packaging into the tower design. Below is a picture of the D2Plug.

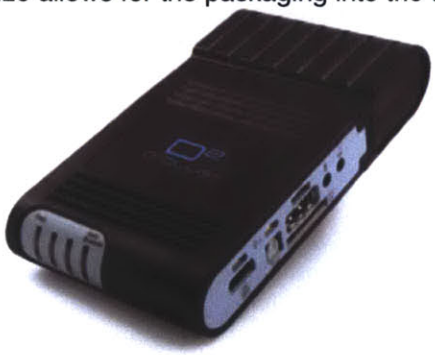


***Figure 6-3.*** D2Plug computer (Source: Globalscale Technologies, Inc.).

***Figure 6-4.*** D2Plug ports (Source: Globalscale Technologies, Inc.).

LEDs

The LEDs used in this study provide visual feedback to the study participants of a positive reading of their RFID tagged dress shirts. The LEDs are Super Bright LEDs that are 10mm in

diameter, emit green color (515-520nm), have a 30-degree viewing angle, and provide 16,000-22,000 MCD output. Red and Blue LEDs were utilized for the "ON" state and Green LEDs signal a positive read. Below are pictures of this type of LED:

***Figure 6-5.*** LED close-up (Source: Sparkfun).

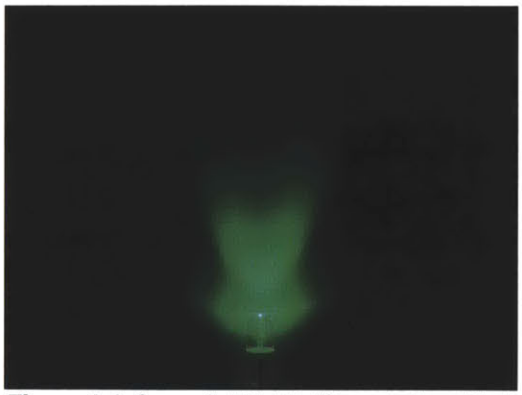


***Figure 6-6.*** Green light LED (Source: Sparkfun).

RFID Tags

Fujitsu (WT-A511/A611) washable RFID tags were utilized in this study. These passive tags do not require batteries, thus making them lightweight enough for our application. These tags can be washed in a laundry machine with ordinary detergent or by a dry cleaner using hydrocarbon solvent. The tags utilize UHF Technology and have two-meter reading range. 100 tags can be simultaneously read in a single pass. They posses the same frequency (902-928 MHz) as the ThingMagic reader and are durable up to 200 wash cycles or 3 years with a heat resistance of up to 85°C for drying (up to 60 min.) and 200°C for ironing (up to 10 min.). The cleaning and ironing durability of these tags make them ideal for our study. Here are a series of pictures of this type of tag:

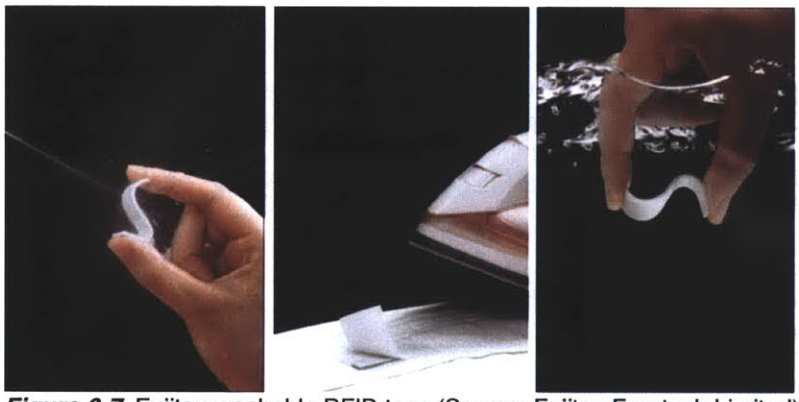


***Figure 6-7.*** Fujitsu washable RFID tags (Source: Fujitsu Frontech Limited).

### 6.5 Design of Shirt Tracking System

The overall system architecture of the shirt tracking system consists of three major components consisting of 1) RFID tracking hardware packaged in the form of a free standing tower to be placed adjacent to entrance and exit doorways, 2) server housed at the MIT Media Lab that wirelessly receives data from the RFID tower, and 3) RFID tags embedded into the shirts worn by the study participants.

The diagram below (Figure 6-8) illustrates an early-proposed design for an in-house set-up, which provides the installation framework for office tracking. Given the read range of two meters for the Fujitsu washable tags, a RFID enabled doorway set up was ideal for this use study. When a participant walks through either the entrance or exit of their office, the tracking system detects the RFID tag and transmits this data to servers at the MIT Media Lab.

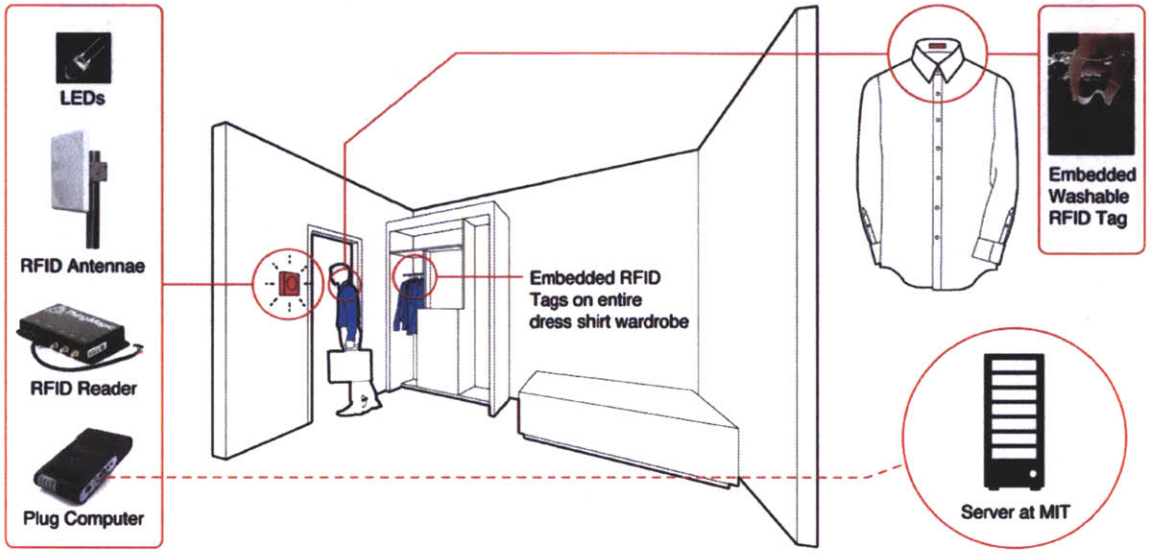



***Figure 6-8.*** Shirt tracking system architecture diagram.

The Media Lab's Glass Infrastructure Project

RFID systems have a long tradition and history at MIT including groundbreaking research conducted by the Auto-ID Center. The Glass Infrastructure Project utilizes RFID enabled plasma display screens distributed throughout the two-building Media Lab complex (Holtzman et al, 2010). Visitors of the Media Lab can interact with the display screens with (UHF) RFID enabled badges that retrieve information about any of the Media Lab's research groups. As users approach the displays the RFID reader picks up each tag's unique ID number from a distance of over 10 meters (see Figure 6-8).

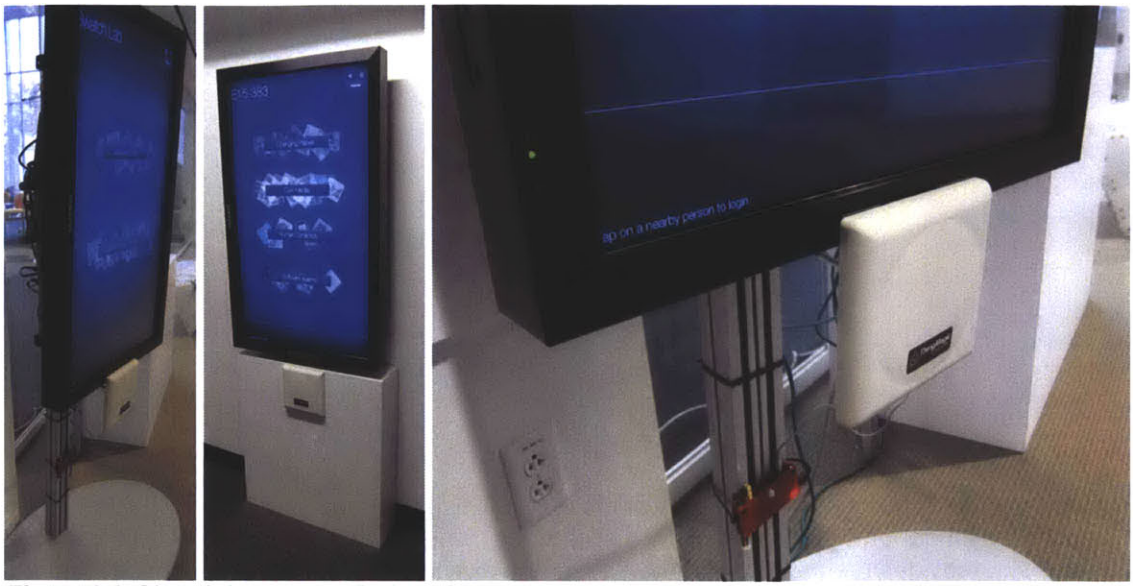



***Figure 6-9.*** Glass Infrastructure Project (Source: MIT Media Lab).

The Glass Infrastructure project would then enable the creation of an individualized digital map for each visitor's experience of the Media lab. The technologies utilized and protocols developed for this project are well suited for the shirt tracking portion of this study because of the read distance capability and reliability of data collection. Also, this technology does not require active RFID tags that normally require bulky batteries, thus enabling the use of unobtrusive passive (and washable in our case) tags. Armed with this previous research by our Media Lab colleagues, we were able to acquire the following general components and any specific hardware required by our application including: ThingMagic Vega Reader, RFID Antennae, and helpful protocols (written in Python) to ensure communication between devices.

Affixing Washable RFID Tags to Dress Shirts

Designed to track assets like bathrobes and towels, technologies like Fujitsu's washable RFID tags are ideal for organizations like hotels and hospitals with many assets that need to be collected, cleaned, and redistributed within a network of buildings and rooms. In some cases, the use of this technology is to prevent theft by either customers or even employees. The manufacturer typically sews washable RFID tags used by large hotels into their assets; however, this was not feasible for this study (even with the new dress shirts). Luckily, the form factor of the tags allow them to be affixed to the dress shirts by either slipping them into the collar stay slot of dress shirts (if the shirts have them) or by placing them inside a washable fabric pouch which can be sewn to the shirt. Figure 6-10 shows the relative scale of a number of washable RFID tags made by various manufacturers compared to a typical shirt collar stay.


***Figure 6-10.*** Washable RFIDs tags.

The form factor, durability, and read range of the Fujitsu washable tags utilized during mock-up tests had the best performance for tracking men's dress shirts. Slipping RFID tags into each collar stay slot provides readability in both entering and exiting the two office locations. It was proven during testing that these tags function best when they are slightly away from the body. The collar location is ideal given that most men in this study do not wear ties, thus providing a few centimeters of distance away from the body. Placing tags on both sides of the collar was also crucial because the participant's body will occlude RFID signals if the antennae were on one side, thus both were required for redundancy. Below is a series of photographs showing how tags are inserted into collar stay slots (Figure 6-11). If there was extra fabric a simple stitch made at the end of the collar stay slot to prevent the tag from falling out during washing, drying, or ironing.

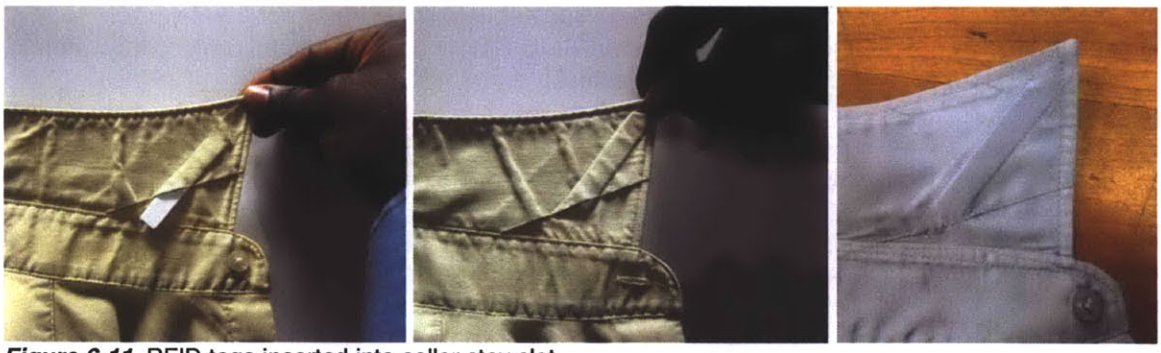


***Figure 6-11.*** RFID tags inserted into collar stay slot.

RFID tags were placed into washable pouches (Figure 6-12) provided by the manufacturer and then sewn into the back of the shirt placket for shirts without collar stays. The back of shirt placket was the ideal location for the placing tags in pouches because stitches will not show through the front of the shirt. The placket location was less readable than the collar due to the proximity of the body, however, still readable within one meter of the RFID antennae.

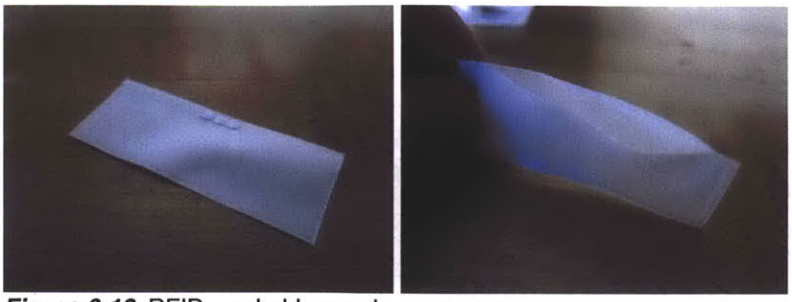


***Figure 6-12.*** RFID washable pouch.

### 6.6 RFID Tracking System Mock-Up and Testing

A mock-up system was prototyped to test readability and the ergonomics of the system. The mock-up consisted of 1) a typical three foot wide doorway, 2) a RFID antennae mounted onto a tripod, 3) RFID reader, and 4) a desktop computer (proxy for plug computer). A large-scale photographer's tripod was critical for testing different antennae heights and angles under differing conditions. Figure 6-13 below shows the set up:

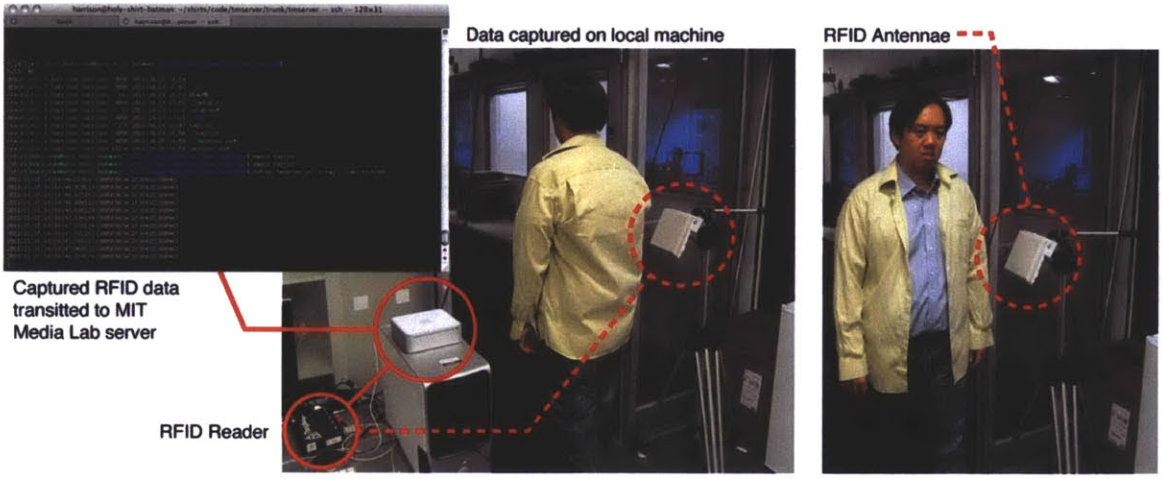



***Figure 6-13.*** RFID tracking system mock-up.

A number of key conditions were tested to ensure reliability of reads. They included:

Varying Size and Height of Subjects – After testing subjects of all shapes and sizes it was determined that a 90° angle ± 5° at a height of four feet from the ground is an ideal position for the antennae for capture the majority of subjects.

Speed – Subjects and walk slowly or quickly through the RFID enabled doorway with ease. Reads were still collected even at running speeds (see Figure 6-14 below).

***Figure 6-14.*** RFID testing with Media Lab students.

Multiple reads – The tracking system was able to read over +100 tags simultaneously. This was proven by our own tests with multiple test subjects.

Jackets – Light overcoats and jackets prove to have only a slight effect by occluding RFID signal. However, heavy leather jackets had difficulty with picking up reads, thus it became important to conduct this study during the summer months.

Bags – Subjects that take multiple shirts in a bag or piece of luggage was also readable. This was tested in case of subjects take multiple shirts to work (perhaps with the need to dry-clean them). The photos below illustrate multiple tags within a piece of rolling luggage (Figure 6-15):

***Figure 6-15.*** Luggage and overcoat test.

In addition to tracking mock-up tests, a four-week RFID durability test was given to Media Lab internal faculty and staff (Sandy Pentland, Kent Larson, Joost Bonsen, and Tyrone Yang) to examine readability as well as survivability during off-site maintenance. During this test a number of tags fell out of shirts either through washing or removal by shirt caretakers. This feedback influenced the design of the cataloging stage (see section later in this chapter).

## 6.7 Tower Design

The physical constraints for a freestanding tower design were generated by the architectural layout of the two office locations. The offices of MIT Technology Review (TR) have exactly two entry/exit points. The main entrance of TR is divided by the receptionist's desk, thus study participants must walk either left or right of the desk. The limited space near the doorway and the lack of power nearby also contributed to the design of a "Mini" tower that could be placed on the top corner of the receptionist's desk that would contain two RFID antennas. The height of the desk governed the maximum height, since the ideal height was approximately four feet from the ground. The other entrance/exit at TR was a hallway near the rear of the suite. The hallway was wide enough to place a freestanding full height tower without obstructing traffic flow.

Fidelity's Center for Applied Technology (FCAT) had multiple entrances, however, the majority of the study participants were located in one corner of the suite bounded by FCAT's library on one edge and the kitchen on the other. Two freestanding towers placed at those locations would provide the coverage necessary for the study and only require one RFID antennae each.

The design goal of each tower was to create a simple visual interface for study participants to affirm positive readings. The designs had to integrate the ideal height and positioning of the RFID antennae and contain all supporting hardware including RFID reader, plug computers, power supply, LED lights, and wiring. The design needed to be stable, so as to not tip over easily as well as quick to install (just power cables and backup signal wire).

Initial sketches (Figure 6-16) included a number of removable panels so that electronics could be easily installed and repaired (if necessary) as well as shelving slots to provide mounting areas for electronics. The design consists of two open slots on the front of each tower. The top slot for the mini-tower was reserved for the RFID antennae and was covered with a perforated and sanded Plexiglas cutout. The lower slot was reserved for the LED display. Since the mini-tower was designed to accommodate two antennas that were positioned perpendicular to each other, two of the four side panels have open slots for hardware components (Figure 6-17). The full height tower design also had two slots, however, the LED display was placed at the top for better visibility and vertical positioning of the antennae.

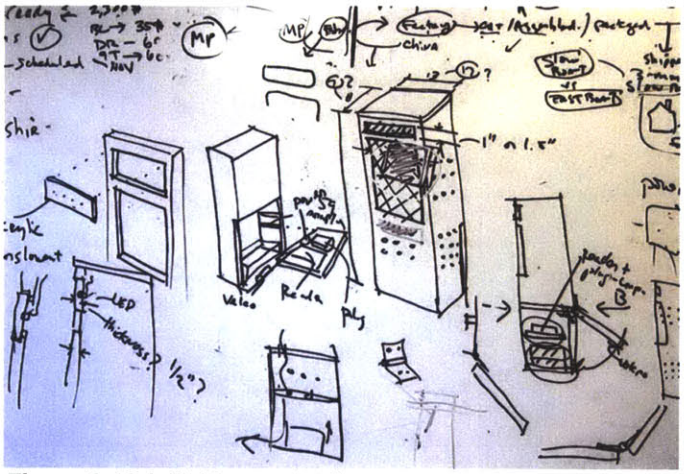


***Figure 6-16.*** Initial tower sketches.

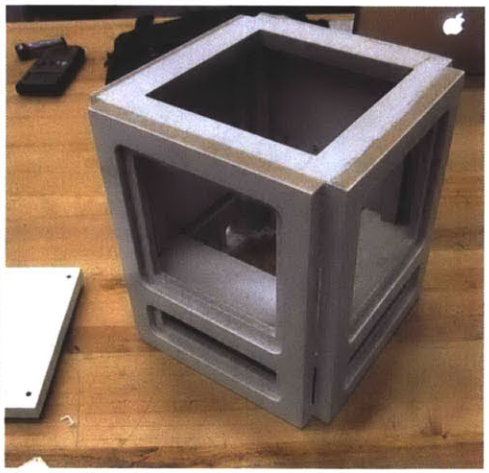


***Figure 6-17.*** Plywood painted mockup.

A number of physical mockups were created using a ShopBot (CNC flatbed router) machine out of plywood and Medium Density Foam (MDF). After additional testing of materials during the mockup phase, the design evolved to include the use of acrylic for antennae covers and for the LED display while the structure and frame of the tower would be made of ¾ inch MDF that was be primed, sanded, and painted (Figure 6-18). The tower was designed 3-dimensionally in CAD and 2-D projections made to create each individual panel out of MDF. The MDF panels would then be glued together to form the structure, while removed panels would be designed to be friction fit or mounted by brackets, and finally, they were painted to create a mockup of the mini-tower for TR's offices (Figure 6-19).

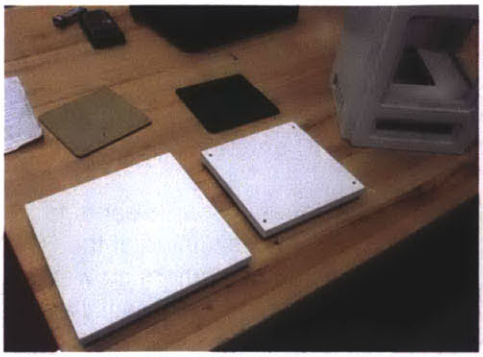


***Figure 6-18.*** Plexiglas covers.

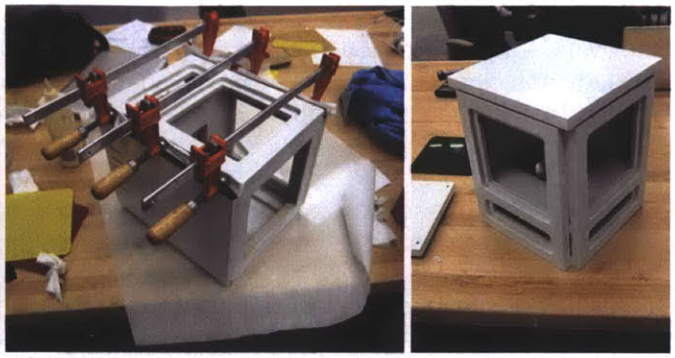


***Figure 6-19.*** Gluing the frame and assembly.

The full height tower was fabricated and painted to provide a sleek minimalist design that could easily match the interior colors in either office location. The photographs below show the assembly and finishing process (Figure 6-20).

***Figure 6-20.*** Tower assembly and painting sequence.

Once fabrication and assembly was finished with the both the RFID Tower and Mini-Tower, then electronic components were installed, tested, and documented. Figure 6-21 below shows testing conducted in the lower atrium of the new Media Lab building (E14).

***Figure 6-21.*** Tower testing (lower Media Lab atrium).

The glass receptionist table in the lower atrium served as a convenient proxy for TR's receptionist desk for the Mini-Tower test installation. The tower units proved to be easy to install for power and network connectivity. Figure 6-22 shows the "OFF" mode (left image), "ON" mode (middle image), "Positive Read" (right image):

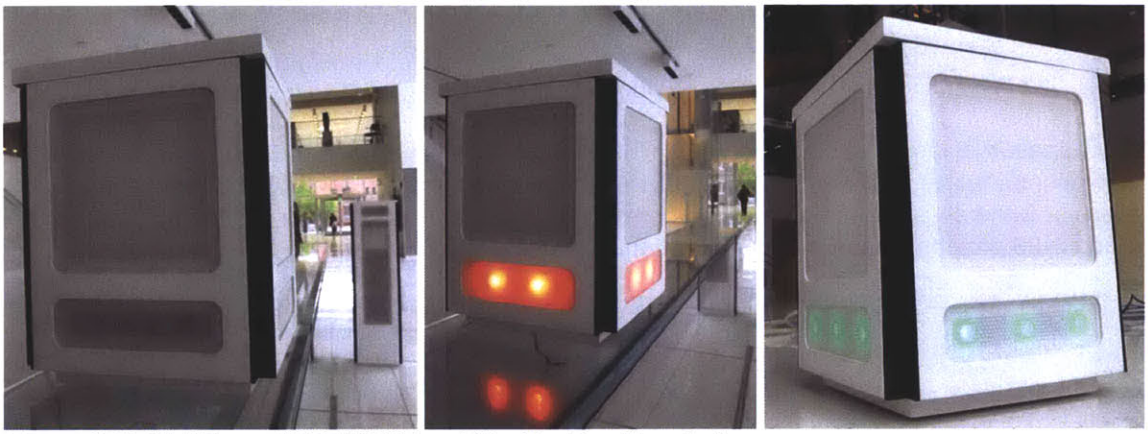


***Figure 6-22.*** Mini-Tower ("OFF," "ON," and "Positive Read" modes).

The freestanding tower designs utilize the same design language of the Mini-tower except they are stretched vertically to meet RFID reading requirements (Figure 6-23 and 6-24). Additional components included adjustable mounting brackets inside the tower that allowed for the adjustment of the vertical position and angle of the RFID antennae (not required for the Mini-Tower). The tower also sits on a short pedestal base to provide stability on rough surfaces like carpets and uneven floors.

***Figure 6-23.*** Tower and Mini-Tower.

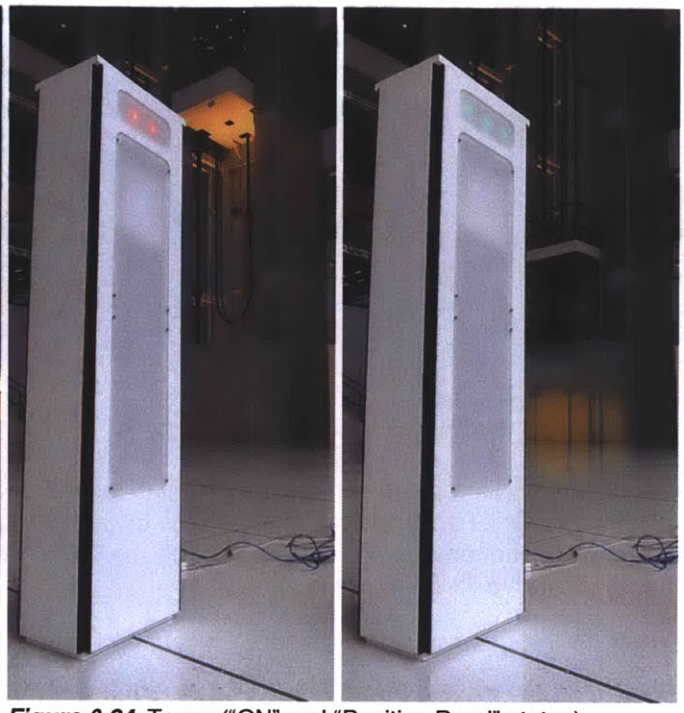


***Figure 6-24.*** Tower ("ON" and "Positive Read" states).

A combination of laser cut black acrylic for the vertical edges and sand-blasted clear acrylic with perforations for the RFID antennae and LED lighting covers provide the in-set panel aesthetic. Layers of white spray paint on top of primer provide the final finish coat for the towers. Figure 6-25 and 6-26 provide close-up documentation of the final design:

***Figure 6-25.*** Tower close-up detail.

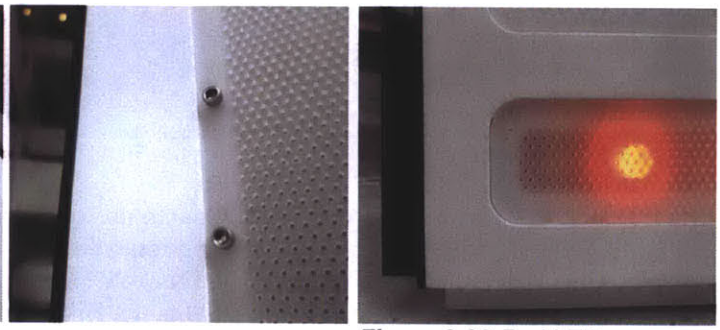


***Figure 6-26.*** Red LEDs.

### 6.8 Shirt Cataloging

The goal of the shirt cataloging stage was to safely and securely associate RFID tags with each of the participant's shirts and to accurately record the characteristics of every shirt in order to create an electronic catalog that would cross-reference tag readings during the data collection stage. This stage requires drop-off and pick-up coordination with participants, thus all participants were asked to drop off all of their dress shirts on a Friday, so that the cataloging process could take place over the weekend, in order to return shirts by Monday morning. Two weekends were required to cover both offices. A small number of dress shirts had to be tagged after the first two sessions – the result of offset wash cycles and the need to wear shirts on Friday or Monday by some participants.

The cataloging operation was designed to have the following steps utilizing a minimum of three operators (graduate students and UROPs):

RFID Tag Preparation Stage – RFID tags from the manufacturer were pre-programmed with a unique identification number. Tags were scanned by the RFID reader and entered into the shirt catalog database. Tags were then associated with particular shirts. Three tags were used in our study. Two tags are required for each collar stay slot and one tag was reserved in case a participant lost a tag. Each set of tags was then designated for each shirt utilizing labels with clips. Each shirt was given one label with three tags. Figure 6-27 illustrates the scanning of RFID tags. Figure 6-28 shows the association of one set of tags onto one shirt:

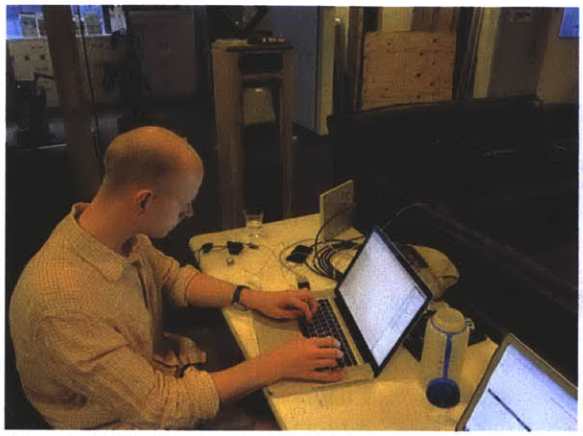


***Figure 6-27.*** Scanning of RFID tags.

***Figure 6-28.*** Associating tags with each shirt.

Organizing Shirt Set Stage – Each participant's shirts were organized and given a tag label. After some initial trials, it was proven best to usher an entire set of shirts through the entire cataloging process rather than breaking up several sets of participants into stages. Sets of shirts were staggered to expedite the process (i.e., a set of shirts can be tagged and sewn while a the tagging process could be started on a second set). Shirts delivered by particpants that were ironned were tagged vertically on racks (Figure 6-29), while the remainder of the shirts were laid out on a table then tagged (Figure 6-30).

***Figure 6-29.*** RFID tagged shirts.

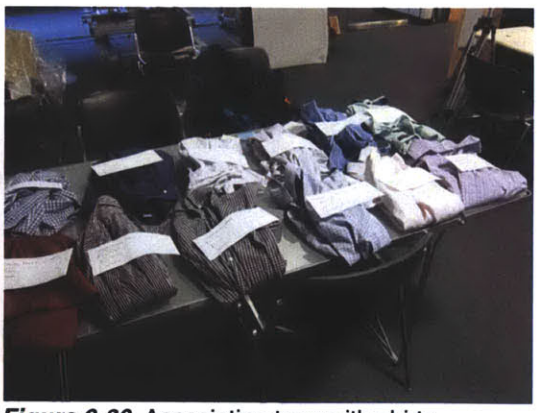


***Figure 6-30.*** Associating tags with shirts.

Sewing RFID Tag Stage – Once a set of shirts with RFID labels was complete, then a team of MIT students (usually UROPs) then associates tags with shirts via collar stay insertion and sewing or pouch sewing into the back of the shirt plackets. This was the most time consuming step as it requires roughly three to four minutes to sew one tag to one shirt. Approximately 50% of

shirts had collar stays suitable for RFID insertion (two tags) whereas the rest utilized placket pouches. Figure 6-31 shows this stage of the process:

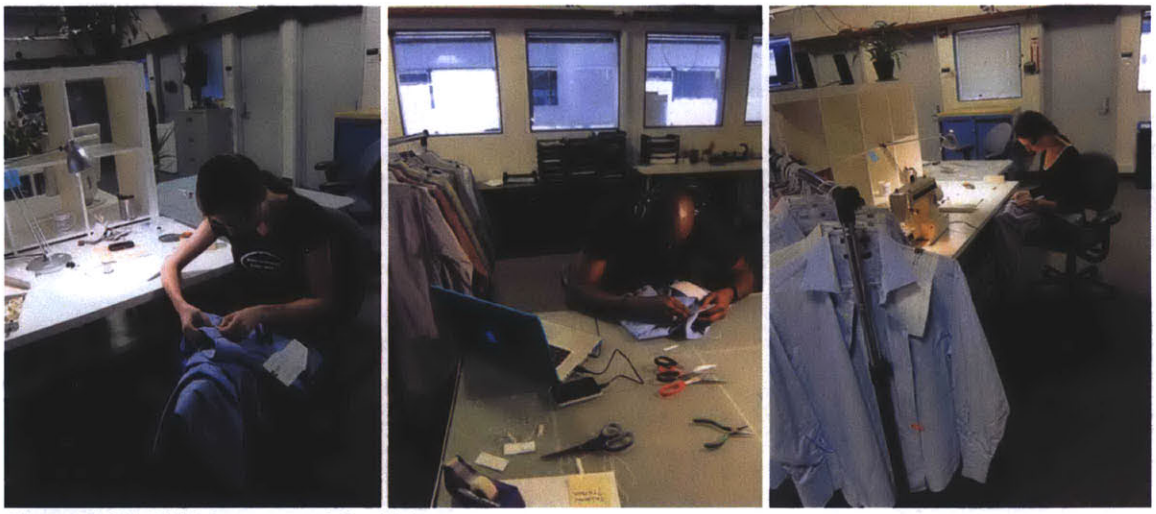


***Figure 6-31.*** RFID tags sewn into shirts.

Data Entry Stage – The next step was to then manually enter shirt characterisitics into the database for each shirt. The key data points include: brand, size, style, fabric composition/weight, pattern, color, cuff style, custom or standard, pockets, etc. The catalog utilizes the Django open web framework to capture the data. Data entry consumes approximately two to three minutes per shirt by one student at this phase. Figure 6-32, below, is a screen capture of a typical "shirt styles" page within the catalog and Figure 6-33 shows a data capturing session:


***Figure 6-32.*** Sample shirt styles database screenshot.

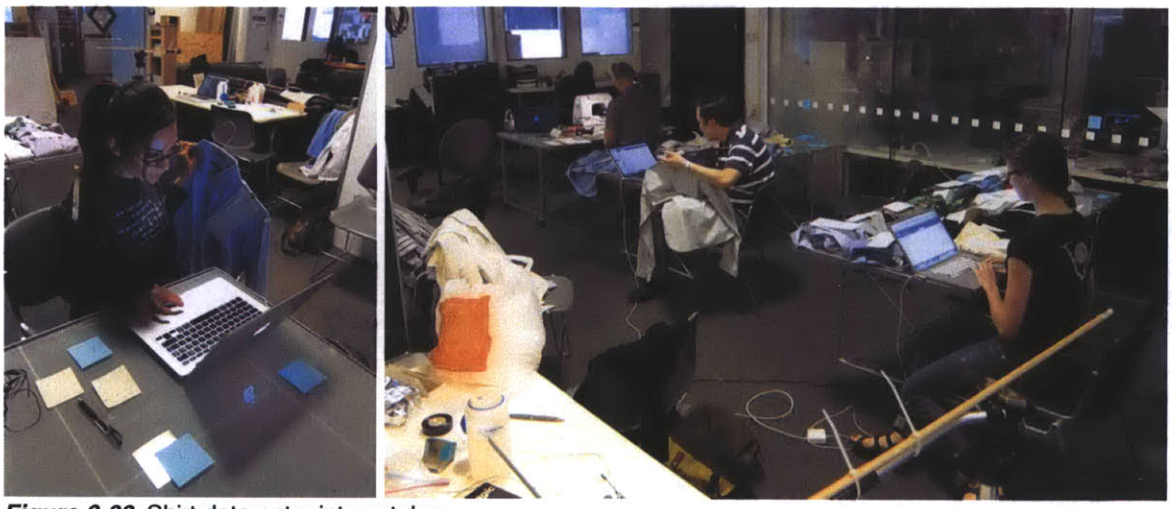


***Figure 6-33.*** Shirt data entry into catalog.

Shirt Photography and Verification Stage – The final stage before returning shirts back to participants required the use of a webcam to capture an image of each shirt which was then associated within the database. Each shirt was then verified by scanning the tagged shirt via RFID antennae and reader. Once a series of checks were performed to verify shirt, tag, and participant, the set of shirts were then folded and returned back to study participants to start the tracking phase of the study. Figure 6-34 below shows the photography and verification stage.

***Figure 6-34.*** Shirt photograph entered into database and verification.

### 6.9 On-Site Installation (MIT Technology Review, Fidelity Center for Applied Technologies)

The installation of the finished towers completed all of the preparation for the tracking study after the cataloging process. The Tower and Mini-Tower was first installed into TR's offices due to their proximity to the Media Lab. The Mini-Tower was simple to install with just power and data cables coming from beneath the receptionist's desk. Visitors and participants within TR's offices approach the main door and were greeted by the illuminated mini-tower. Participants with tags are detected no matter the direction they travel pass the receptionist desk. Figures 6-35 and 6-36 show the overall office context and close-up views of the Mini-Tower.


***Figure 6-35.*** Mini-Tower installation at MIT TR's receptionist desk.


***Figure 6-36.*** Close-up views of Mini-Tower.

The hallway installation was less simple as network drops were much further away, thus necessitating the use of a 50-foot Ethernet cable.

Two towers were installed at FCAT's offices. The first was installed near the entrance of the kitchen area across from vending machines. This location was in close proximity to copy machines and was bounded by the rear hallway exit. Participants entering or exiting would pass by this tower within five to six feet – well within our read range. Tests were successfully conducted with tagged participants to verify position and angle as well as simultaneous reads. Figures 6-37 and 6-38 show the tower in the kitchen context as well as close up of the blue LED lights used to indicate "ON" for this office.

***Figure 6-37.*** RFID Tower installation at FCAT kitchen area ("OFF", "ON", and "ON" modes).

***Figure 6-38.*** RFID Tower close-up.

The second tower installation was placed near the entrance of FCAT's library (on the inside of the door). This location has a single door swing and we were able to position the unit within six inches of the vertical edge of the door, thus guaranteeing good read distance. A nearby electrical and network closet provided the necessary cabling to install this unit with ease. The clear and translucent composition of the glass door and walls of the library provide a foreground framework that allows users from both directions to see the illuminated tower as it greets them during entry and exit. This unit proves to be the most reliable and accurate reader throughout the whole study. Figures 6-39 and 6-40 illustrate the positioning of the second tower.

The wireless transmission of RFID data posed a problem in both locations as we discovered through installation testing. A MiFi unit was also tested because of FCAT's requirements for secured transmission of data independent of their wireless network. However, signal strength became a problem as distance and a number of walls separated the two towers, therefore reverting us back to a wired solution. The reliability of a wired connection and relative easy access to a network drop at TR also confirmed our use of wired data transmission.


***Figure 6-39.*** RFID Tower installation near FCAT library.

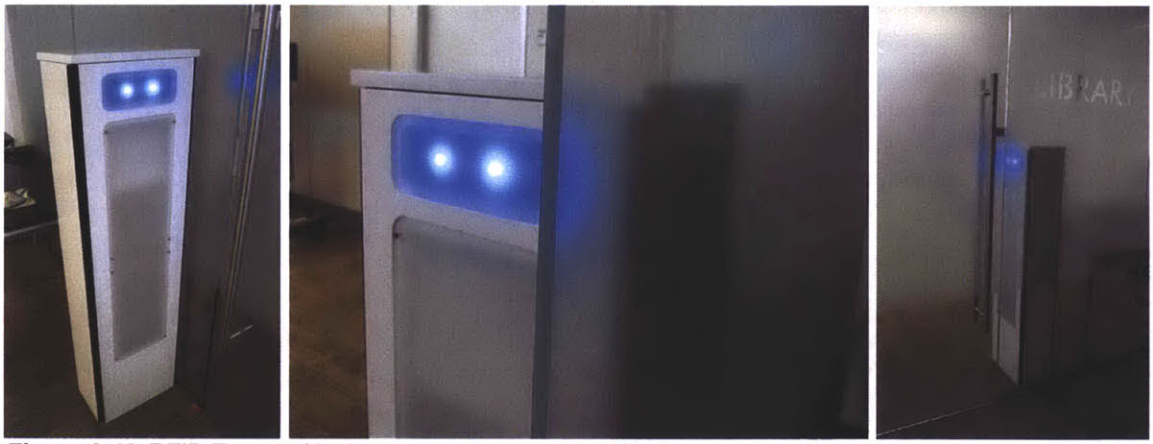


***Figure 6-40.*** RFID Tower with view from entrance side of library.

### 6.10 Data Collection

Over 22,000 individual RFID tag reads were made over a four-month period (May 7th to August 31st, 2012) between TR and Fidelity's offices. The number of distinct readings for each office varied between 33 to 68 shirt wearing days for TR employees and 33 to 61 days for Fidelity employees. Figure 6-41 (below) shows the scan records for both offices utilizing our scan record remote access website:

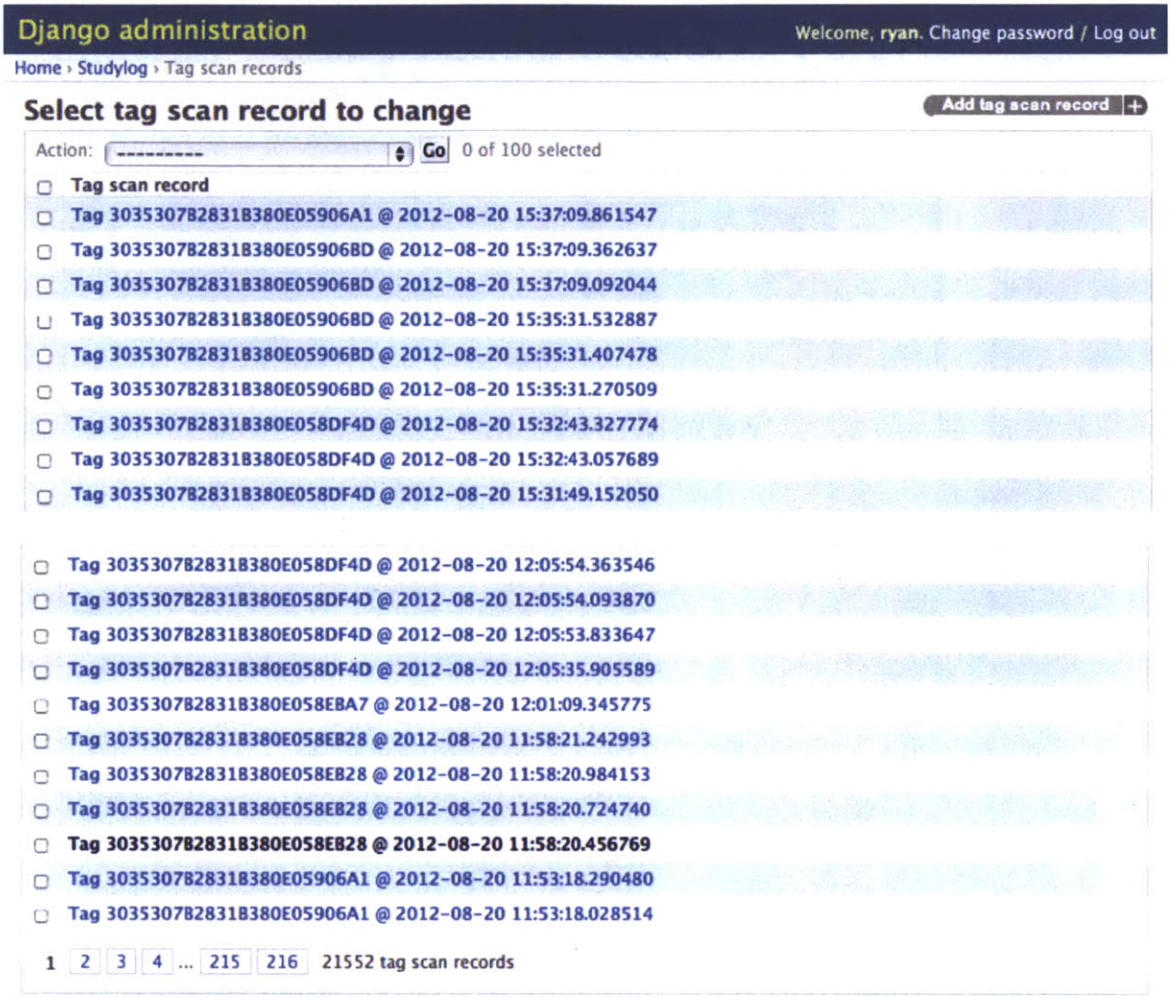



***Figure 6-41.*** Cumulative tag scan records.

Each reading can be identified with a specific office, tracking tower, tag, and time stamp for verification after data collection (Figure 6-42). About one dozen cases needed to be verified because of multiple shirts readings on the same day. Often this was from participants bringing additional shirts to work before a trip, so this data helped to discern which shirt was actually worn that day:


***Figure 6-42.*** Individual RFID tag scan records.

### 6.11 Shirt Catalogs

Once RFID data was collected for each participant and cross-referenced with each shirt, then a catalog can be produced for each participant. Shirts were organized into a catalog that would display shirt ID number, an image of each shirt, days worn, and type (MP, MM, or CT). New MP and MC shirts were distinguished through color-coding and the most worn shirt was also highlighted. Eighteen catalogs were made for this study for each participant. Below is a sample catalog for test subject FI-A (Fidelity A) that is of a typical shirt profile for one of the participants:

| Shirt ID | Image of Shirt | Days Worn | Type | Shirt ID | Image of Shirt | Days Worn | Type |
|---|---|---|---|---|---|---|---|
| 1 |  | 2 | **New MM** | 8 |  | 0 | MP (Existing) |
| 2 |  | 6 | **New MP** | 9 |  | 2 | MP (Existing) |
| 3 |  | 7 | MP (Existing) | 10 |  | 3 | MP (Existing) |
| 4 |  | 4 | MP (Existing) | 11 |  | 1 | MP (Existing) |
| 5 |  | 0 | MP (Existing) | 12 |  | 0 | MP (Existing) |
| 6 |  | 8 | **Most Worn MP (Existing)** | 13 |  | 0 | MP (Existing) |
| 7 |  | 2 | MP (Existing) | 14 |  | 0 | MP (Existing) |

***Table 6-3.*** Sample shirt catalog (FI-A).

A small number of participants had existing MC shirts in their wardrobe, which required additional color-coding to distinguish existing custom shirts. Table 6-4 (below) is a sample catalog for that type of participant called FI-K (Fidelity K):

| Shirt ID | Image of Shirt | Days Worn | Type | Shirt ID | Image of Shirt | Days Worn | Type |
|---|---|---|---|---|---|---|---|
| 1 |  | 3 | MP (Existing) | 16 |  | 3 | CT (Existing) |
| 2 |  | 0 | MP (Existing) | 17 |  | 1 | CT (Existing) |
| 3 |  | 0 | MP (Existing) | 18 |  | 5 | **Most Worn CT (Existing)** |
| 4 |  | 2 | MP (Existing) | 19 |  | 3 | CT (Existing) |
| 5 |  | 2 | MP (Existing) | 20 |  | 3 | CT (Existing) |
| 6 |  | 1 | MP (Existing) | 21 |  | 2 | CT (Existing) |
| 7 |  | 3 | MP (Existing) | 22 |  | 0 | CT (Existing) |
| 8 |  | 2 | **New MP** | 23 |  | 2 | CT (Existing) |
| 9 |  | 2 | MP (Existing) | 24 |  | 1 | CT (Existing) |
| 10 |  | 0 | MP (Existing) | 25 |  | 0 | CT (Existing) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11 |  | 1 | CT (Existing) | 26 |  | 3 | CT (Existing) |
| 12 |  | 3 | MP (Existing) | 27 |  | 1 | MP (Existing) |
| 13 |  | 2 | **New CT** | 29 |  | 2 | CT (Existing) |
| 14 |  | 4 | CT (Existing) | 30 |  | 1 | CT (Existing) |
| 15 |  | 2 | CT (Existing) | | | | |

***Table 6-4.*** Sample shirt catalog (FI-K).

Individual dress shirts can then be organized and ranked by the most to least used with each participant's wardrobe in a column chart in order to compare relative usage as well as "Ideal Utilization" defined by the number of days shirts were worn in the study divided by the total number of shirts. For example, Subject FI-A, has 14 shirts in his wardrobe. He was tracked for 35 days, thus his ideal shirt usage is equal to 2.5 days. In other words, if Subject FI-A would wear his shirts equally, one after another, then he should wear each shirt 2.5 times throughout the study. Shirts worn less or not at all are considered under utilized and shirts above are considered highly utilized. Figure 6-43 below illustrates Subject FI-A's utilization:

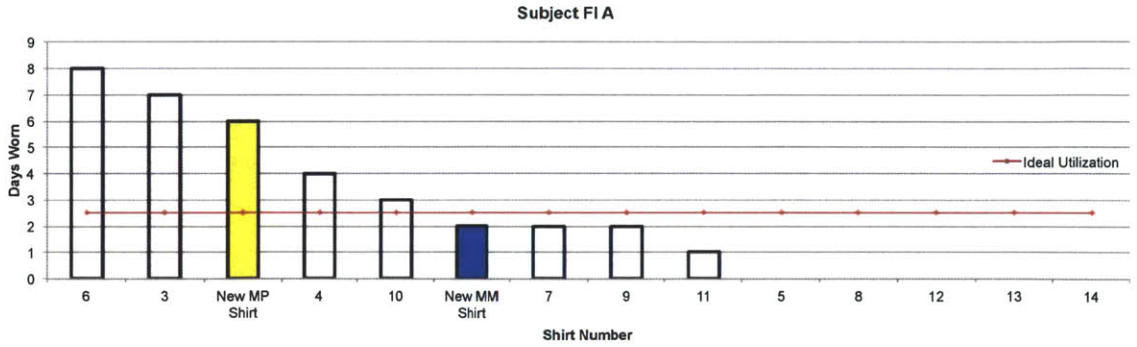



***Figure 6-43.*** Shirt utilization (subject FI-A).

For subject FI-A, the most worn shirt was shirt no. 6, an off-the-shelf MP shirt, that was worn eight times, which was 5.5 more days than the ideal utilization rate. Shirt no. 3, 4, and 10 also were highly utilized as well as his new MP shirt. The new MM shirt was slightly underutilized in this case. Subject FI-A also had many shirts he did not use at all (5, 8, 12, 13, 14). He did not utilize five out of his 14 shirts, thus the subject was only 64.3% effective in utilizing his whole wardrobe.

This was not atypical as the effective utilization by the general public (Chapter 4) was approximately 67.3% wore more than half of their wardrobe. The end-of-study interviews chapter of this study delves into the reasons why participants specifically chose to wear particular shirts (i.e., most worn, new MP, new MC, etc.).

The effective utilization of the participant's wardrobe does diminish with a larger wardrobe because of product decay. For example, a participant that practices the ideal utilization of 10 shirts will wear them out much faster than one with 100 shirts. Participants with 100 shirts will take five months, if they went to work five days a week, to wear each shirt just one time. In the long run those with many shirts will encounter other forms of decay including the total product shelf life as well as fashion trends (e.g., French cuffs going out of style), thus this study was capped at 30 shirts to not only minimize these effects, but also obtain reasonable turn-around of shirt usage patterns.

In contrast to the previous participant, subject FI-K exhibited a very different use pattern. The number of MC shirts (17) within his wardrobe in comparison to his MP shirts (12) was the highest percentage ownership of custom shirts in the study. The majority of his shirts that were above his ideal use rate of 1.86 days were CT shirts (11 vs. 7) or 61.1%. Both the new MP and CT shirt were worn two times, which are slightly above the ideal. The shirts below the ideal use rate consisted of six CT and five MP shirts for a ratio of 54.5%, a slightly lower rate for CT shirts. This subject had five shirts that were not worn for an effective utilization of 79.3%.

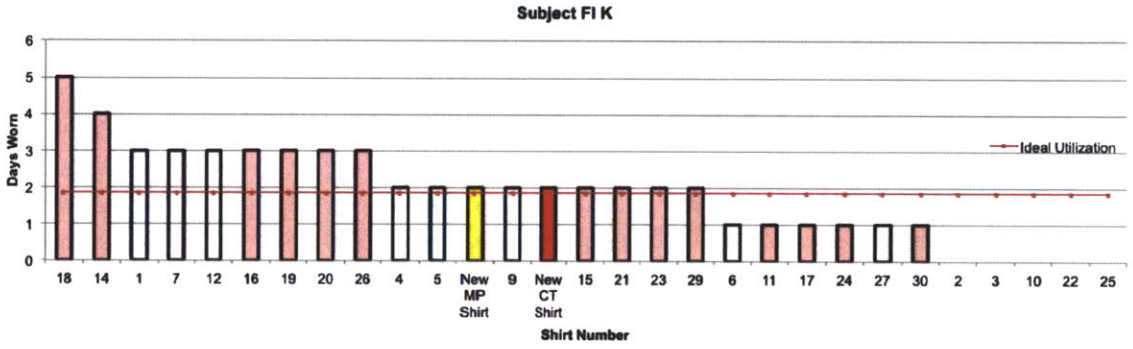



***Figure 6-44.*** Shirt utilization (subject FI-K).

Subject FI-D's shirt wearing behavior nearly matched the ideal utilization rate carefully organizing his closet in a First In, First Out (FIFO) fashion. The FIFO strategy allowed him to remove shirts from his wardrobe (prior to the study) that he no longer wears for donation. This subject utilized virtually all his wardrobe (Figure 6-45) and at the time of this writing and given his methodical behavior, should yield nearly uniform distribution.

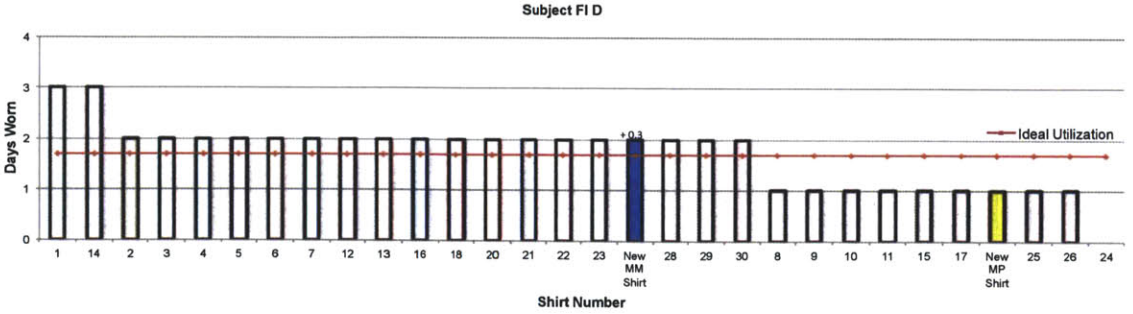


***Figure 6-45.*** Shirt utilization (Subject FI-D).

Also exhibiting FIFO behavior was subject TR-F (Figure 6-46). His usage pattern is similar to subject FI-D and verified in the end-of-study interview. However, it should be noted that this should does have an emotional connection to his new CT shirt and does not act like an automaton. He utilized his new CT shirt during a board meeting and said that the "custom shirt felt REAL GOOD on that day."

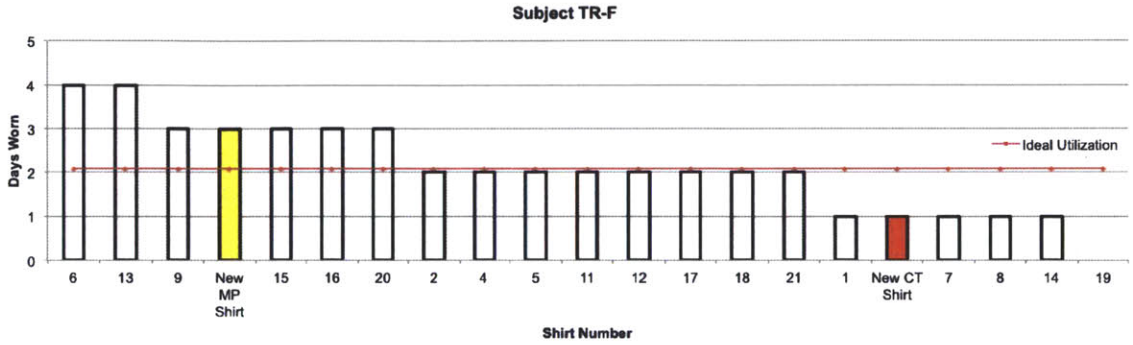



***Figure 6-46.*** Shirt utilization (Subject TR-F).

Several subjects favored a small number of shirts that were utilized often, whereas the rest of the wardrobe was rarely or never utilized. Subject FI-G utilized exactly half of his 22 shirts including both of his new shirts above the ideal utilization rate of 1.91 days (Figure 6-47). The dramatic cliff like drop-off, illustrates the lack of use of exactly half of his shirts.

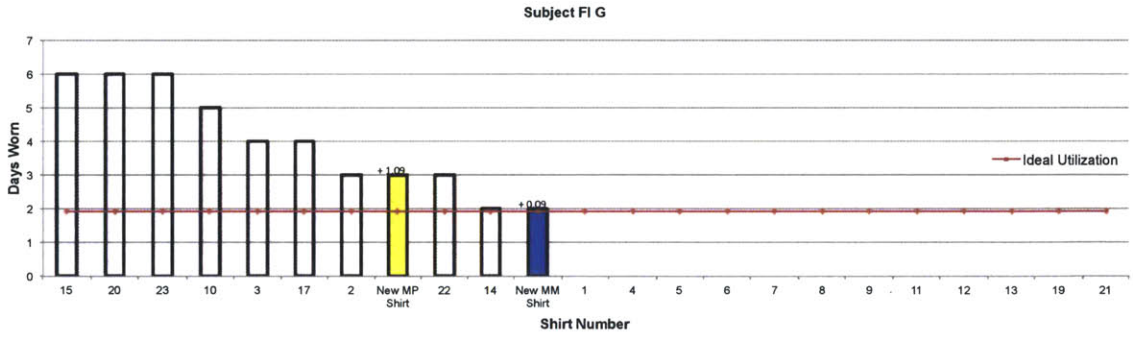



***Figure 6-47.*** Shirt utilization (Subject FI-G).

Another subject showcasing similar characteristics was subject FI-L. This participant favored 12 of the 28 shirts including his new CT shirts, which were utilized at or above his ideal use rate of 1.97 days (Figure 6-48). This subject only utilizes 58.6% of his wardrobe:

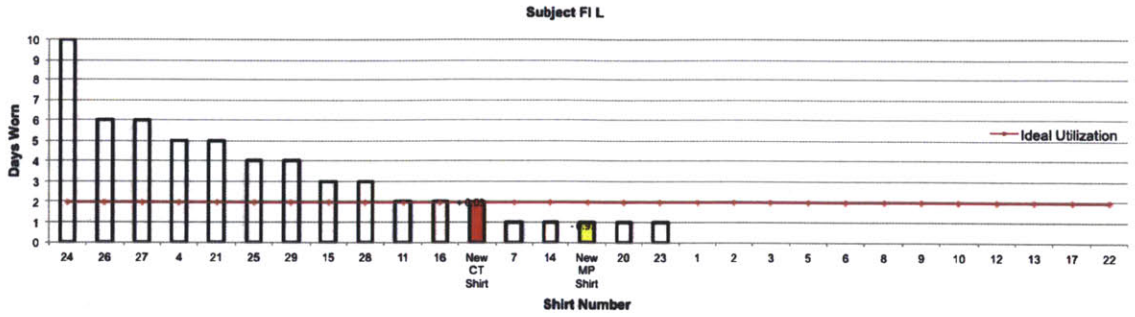



***Figure 6-48.*** Shirt utilization (Subject FI-L).

The graphic below (Figure 6-49) show yet another subject with shirt use imbalance. Subject TR-H utilizes only four shirts above his ideal utilization rate of 3.50 days. However, his effective utilization is much higher at 92.9% because he wears almost every shirt at least one time. His top four shirts added together was equal to 71.4% (35/49) of his entire shirt wearing days.

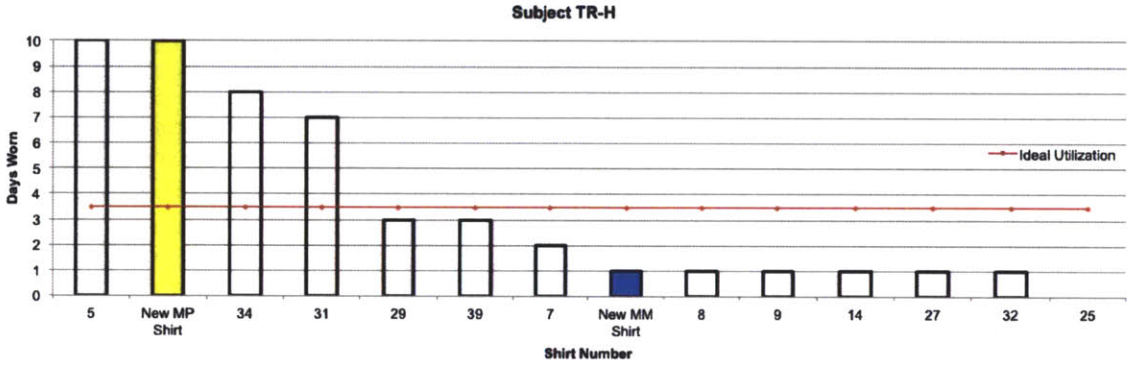



***Figure 6-49.*** Shirt utilization (Subject TR-H).

Another subject that showed asymmetric use of his wardrobe was Subject TR-A (Figure 6-50). His effective utilization was high at 94.1% since he wore every shirt at least once except for two shirts, however, his top 5 shirts added together was equal to 65.6% of all of his shirt wearing days.

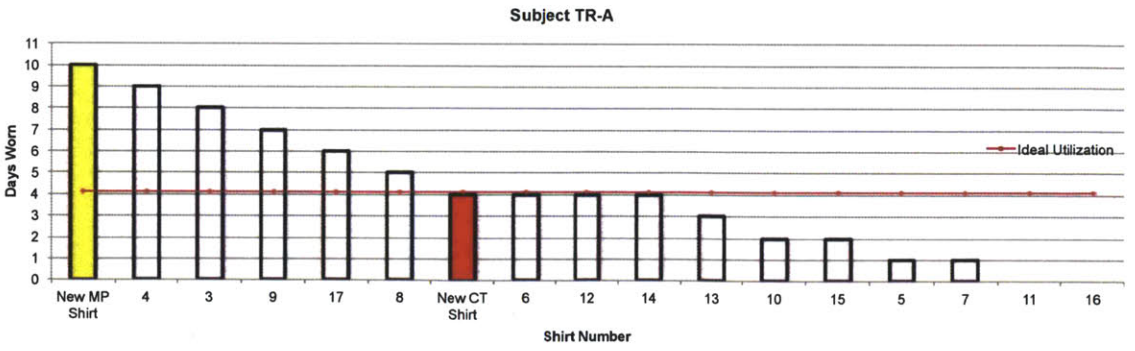



***Figure 6-50.*** Shirt utilization (Subject TR-A).

Subject FI-B did not utilize his new CT shirt during the tracking phase of this study, as illustrated in Figure 6-51, however, during interviews we discovered that he did wear the new shirt five times

outside of work for special occasions (e.g., weddings, presentations during travel, etc.), which would place it second in terms of use within his wardrobe. This subject chose not to wear his new CT shirt because he designated that shirt as "Special" because of the superior quality and level of personalization it had over his normal shirts. The new CT shirt was three times what he would normally pay for a shirt and often work requires him to perform physical tasks which may damage his shirt. Subject FI-B also rides a bicycle to work and fears ruining the shirt. He does consider this shirt to be his favorite and it has elevated his appreciation for well-made and customized clothing and wishes he could transform his entire wardrobe into custom shirts if they were less expensive (around $60-70).

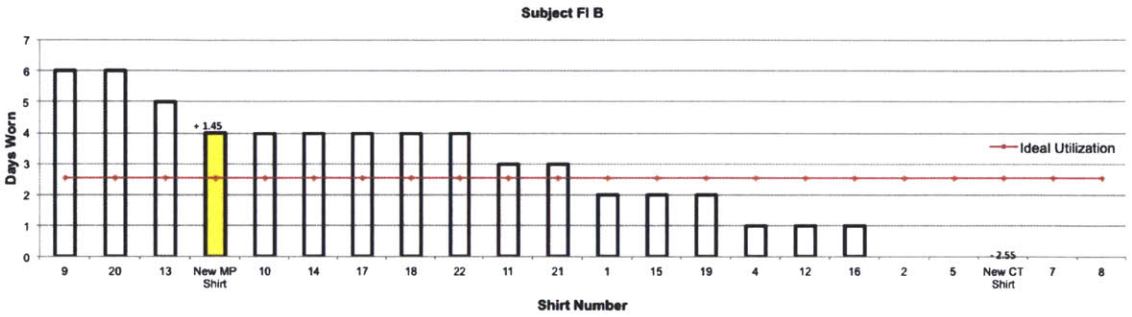



***Figure 6-51.*** Shirt utilization (Subject FI-B).

Several subjects showed favoritism to one or two shirts and in both cases the MP shirt was the most worn, but at completely different price points. Subject FI-F, wore his new MP shirt twice as much as his next highest shirt. Whereas his new CT shirt was worn only for special occasions and just slightly above the ideal utilization rate of 2.54 days (Figure 6-52):

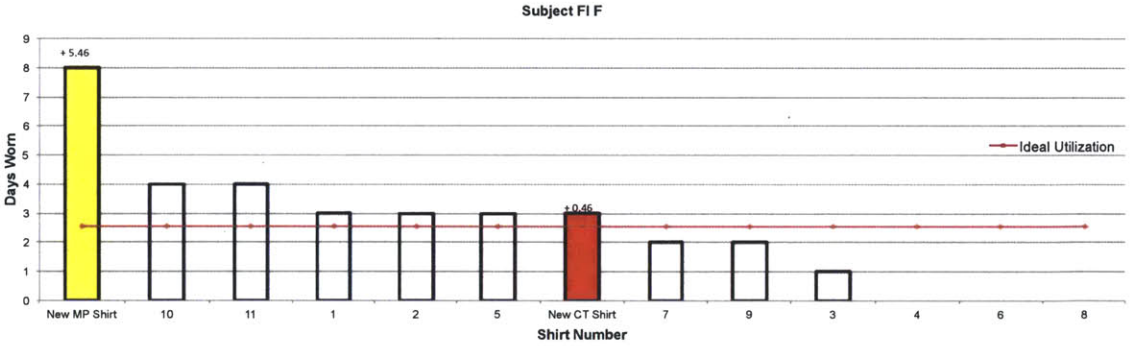



***Figure 6-52.*** Shirt utilization (Subject FI-F).

Another subject that favored his key shirts was subject TR-B (Figure 6-53). This participant wore the two new shirts much more than his ideal utilization rate of 3.46 days. His top 4 shirts were worn 71.1% of the time (32/45).

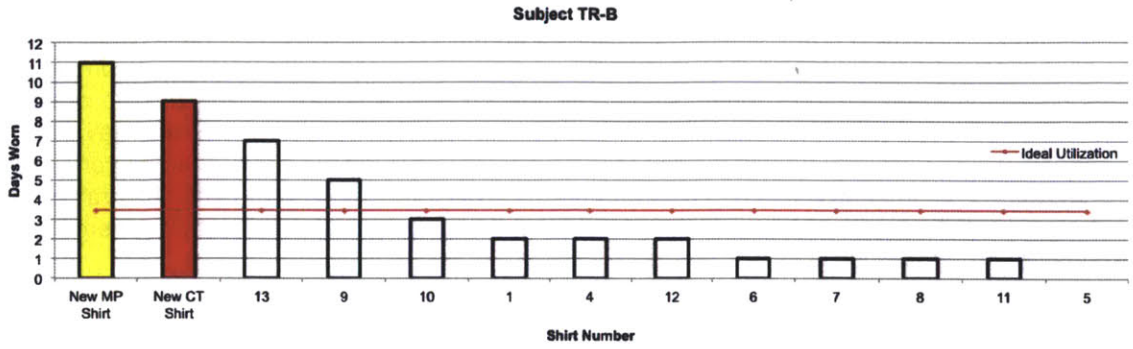



***Figure 6-53.*** Shirt utilization (Subject TR-B).

Subject FI-C also favored a limited number of shirts, however, his most worn shirt was a very seasonable (short sleeve) and his second most worn shirt was inexpensive (~$8), thus enabling comfort and a worry-free wearing attitude. His new MP and CT shirt were utilized often and were more than two days over his ideal use rate of 2.54 days (Figure 6-54):

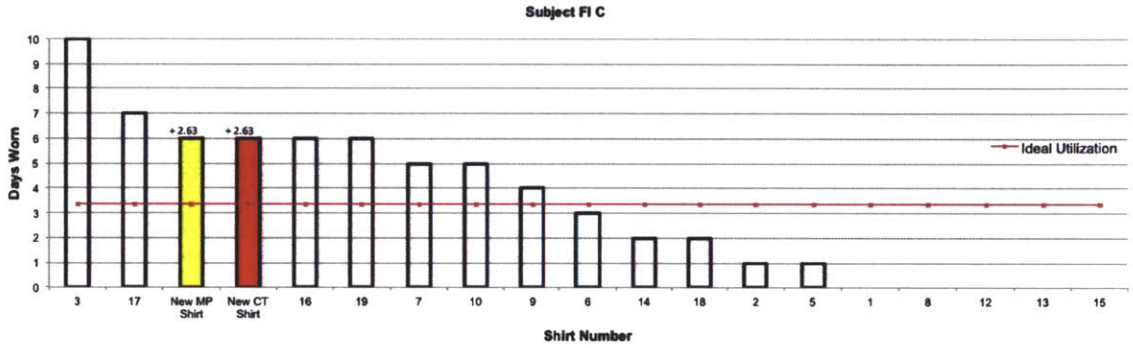



***Figure 6-54.*** Shirt utilization (Subject FI-C).

The last subject to favor his top two most-worn shirts was subject TR-D (Figure 6-54). He wore two MP shirts he already owned 47.6% of the time (20/42), but neither his new CT nor his new MP shirt was in the top two. He was also one of the few respondents to wear his new MP shirt less than his new CT shirt.

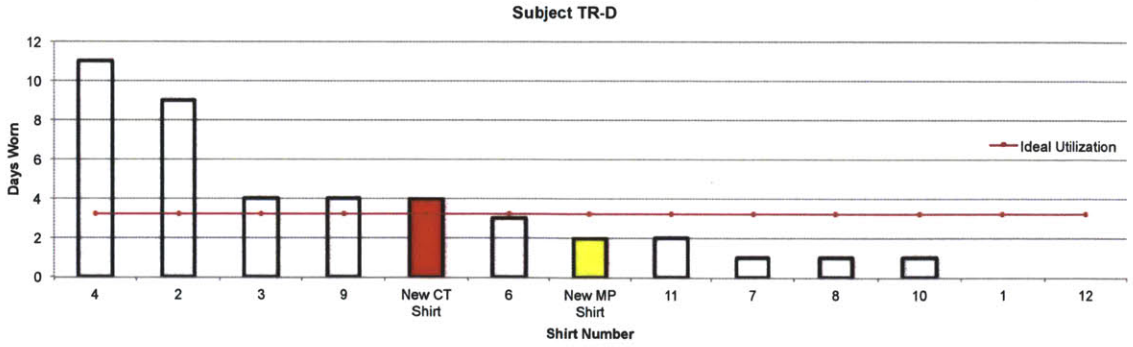



***Figure 6-54.*** Shirt utilization (Subject TR-D).

The majority of the participants in Experiment II wore both of their new shirts more than the average shirt (+1.03% for MC and +4.63% for new MP). Also, most participants wore their new MP shirts more than their CT shirts. However, four of the 18 subjects reversed this trend. Subject

TR-G (Figure 6-55) exhibited this behavior, as his new MP shirt was worn -1.53 days less than his ideal utilization rate of 4.53 days.

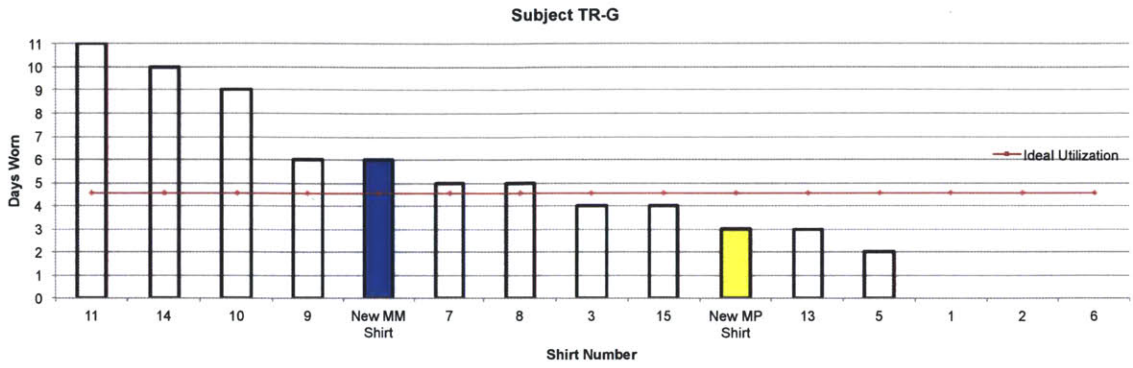



***Figure 6-55.*** Shirt utilization (Subject TR-G).

## 6.12 Shirt Calendars

The next step in the analysis was to examine patterns of shirt wearing behavior in a visual calendar format. This allows for the discovery of repetitious patterns (e.g., which colors are worn most often or shirt wearing order), dynamic behavior (e.g., weather changes), or emergent behavior (e.g., use of a new shirt vs. older shirts). Visual calendars can be examined individually or in aggregate to see if there are common patterns of use. The following shirt calendar for subject FI-K illustrates a typical visualization of this data (Table 6-5) below (note: the use of pink to indicate an existing CT shirt and yellow for the new MP shirt):

| Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|
| 14-May | 15-May | 16-May | 17-May | 18-May |
|  |  |  |  |  |
| 15 | 16 | 4 | 14 | 30 |
| 21-May | 22-May | 23-May | 24-May | 25-May |
|  |  |  |  |  |
| 8 | 19 | 18 | 26 | 29 |
| 28-May | 29-May | 30-May | 31-May | 1-Jun |
| Memorial Day Holiday |  |  |  |  |
| | 23 | 20 | 7 | 16 |

| 4-Jun | 5-Jun | 6-Jun | 7-Jun | 8-Jun |
|---|---|---|---|---|
|  |  |  |  |  |
| 17 | 15 | 14 | 13 | 18 |
| 11-Jun | 12-Jun | 13-Jun | 14-Jun | 15-Jun |
|  |  | |  |  |
| 5 | 19 | | 9 | 1 |
| 18-Jun | 19-Jun | 20-Jun | 21-Jun | 22-Jun |
|  |  | |  | |
| 8 | 26 | 12 | 18 | |
| 25-Jun | 26-Jun | 27-Jun | 28-Jun | 29-Jun |
|  | | Independence Day Holiday | |  |
| 21 | | | | 23 |
| 2-Jul | 3-Jul | 4-Jul | 5-Jul | 6-Jul |
| | | |  |  |
| | | | 7 | 4 |
| 9-Jul | 10-Jul | 11-Jul | 12-Jul | 13-Jul |
|  |  |  |  |  |
| 20 | 14 | 18 | 1 | 16 |
| 16-Jul | 17-Jul | 18-Jul | 19-Jul | 20-Jul |
| |  |  |  |  |
| | 24 | 6 | 19 | 29 |
| 23-Jul | 24-Jul | 25-Jul | 26-Jul | 27-Jul |

| | | | | |
|---|---|---|---|---|
|  |  |  |  | |
| 26 | 21 | 13 | 9 | |
| 30-Jul | 31-Jul | 1-Aug | 2-Aug | 3-Aug |
|  |  |  |  |  |
| 12 | 5 | 20 | 7 | 11 |
| 6-Aug | 7-Aug | 8-Aug | 9-Aug | 10-Aug |
|  |  |  | | |
| 14 | 18 | 1 | | |

***Table 6-5.*** Shirt calendar (subject FI-K).

The graphic above showcases three distinct patterns of use. The first is the dominance of the corporate colors (light blue and white) that is expected in a financial services company. The second is the use of one non-corporate color per week (sometimes two). The third pattern, related to the second, is the use of pink at the end of the week. From the interviews, it was determined that this practice comes from a borrowed tradition from another office of wearing pink shirts on Friday. This subject's favorite shirts are both pink (with a Gingham pattern). There is no discernable pattern between CT and MP shirts, other than MP shirts are typically worn just once a week. Both times the new CT shirt was worn for presentations.

Statistical analysis on this subject shirt wearing behavior yields the following table:

| **Category** | |
|---|---|
| Possible shirt (days) | 53 |
| MM or CT (days) | 35 |
| MP (days) | 18 |
| New MP Shirt (days) | 2 |
| New MM or CT (days) | 2 |
| Number of Shirts NOT worn | 6 |
| Number of CT or MM Shirts in Wardrobe | 17 |
| Number of new MP shirts | 1 |
| Number of Existing MP shirts | 11 |
| Total Number of MP shirts in Wardrobe | 12 |
| Effective Utilization (Worn vs. Not Worn) (%) | **79.3%** |
| Ideal Shirt Utilization (Shirt Days Worn/Number of Shirts) (days) | 1.83 |
| New MC shirt (plus/minus) over Ideal Usage (days) | **0.17** |
| Ratio of MC shirts in Wardrobe (%) | 58.62% |
| MC use rate (%) | 66.04% |

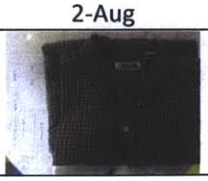
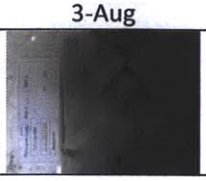
| | |
|---|---|
| MC use difference over MP (Plus/Minus) (%) | **7.42%** |
| Ratio of New MP shirts in the Wardrobe (%) | 3.45% |
| New MP Use Rate (%) | 3.77% |
| New MP over rest of MP (Plus/Minus) (%) | 0.33% |

***Table 6-6.*** Usage patterns (subject FI-K).

Subject FI-K exhibits slightly better utilization of his wardrobe than the average at 79.31% vs. 75.6% (his office average) and has utilized his new CT shirt on par with his ideal shirt usage at just 0.17 days over the average. The subject's high ownership rate of MC clothing does not deter him from wearing his CT clothing more frequency than his MP clothing (+7.42%).

A more typical profile of use within the study was that of subject FI-C which only had one MC shirt (a new one) and had a preference for wearing about 73% of his wardrobe (the average for the study is 75.6%). His calendar below showcases his use patterns for the tracking time period (Table 6-7):

| Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|
| 14-May | 15-May | 16-May | 17-May | 18-May |
|  |  |  |  |  |
| 2 | 9 | 10 | 4 | 6 |
| 21-May | 22-May | 23-May | 24-May | 25-May |
|  |  |  |  |  |
| 11 | 4 | 9 | 10 | 3 |
| 28-May | 29-May | 30-May | 31-May | 1-Jun |
| Memorial Day Holiday |  |  |  |  |
| | 9 | 4 | 3 | 7 |
| 4-Jun | 5-Jun | 6-Jun | 7-Jun | 8-Jun |
|  |  |  |  |  |
| 4 | 9 | 10 | 11 | 6 |
| 11-Jun | 12-Jun | 13-Jun | 14-Jun | 15-Jun |
|  | |  |  |  |

| | | | | |
|---|---|---|---|---|
| 7 | | 19 | 4 | 17 |
| 18-Jun | 19-Jun | 20-Jun | 21-Jun | 22-Jun |
|  |  |  |  | |
| 6 | 16 | 3 | 17 | |
| 25-Jun | 26-Jun | 27-Jun | 28-Jun | 29-Jun |
|  |  |  |  |  |
| 11 | 4 | 7 | 3 | 16 |
| 2-Jul | 3-Jul | 4-Jul | 5-Jul | 6-Jul |
| | | Independence Day Holiday | | |
| 9-Jul | 10-Jul | 11-Jul | 12-Jul | 13-Jul |
|  |  |  |  |  |
| 16 | 3 | 17 | 19 | 3 |
| 16-Jul | 17-Jul | 18-Jul | 19-Jul | 20-Jul |
| | | |  |  |
| | | | 17 | 18 |
| 23-Jul | 24-Jul | 25-Jul | 26-Jul | 27-Jul |
|  |  |  |  |  |
| 7 | 19 | 11 | 16 | 3 |
| 30-Jul | 31-Jul | 1-Aug | 2-Aug | 3-Aug |
|  |  |  |  |  |
| 10 | 19 | 16 | 14 | 17 |
| 6-Aug | 7-Aug | 8-Aug | 9-Aug | 10-Aug |

| | | | | |
|---|---|---|---|---|
|  |  |  |  | |
| 18 | 11 | 3 | 10 | |
| 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug |
|  |  |  |  |  |
| 17 | 16 | 11 | 3 | 14 |
| 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug |
|  |  |  | | |
| 7 | 3 | 19 | | |

***Table 6-7.*** Shirt calendar (subject FI-C).

Subject FI-C exhibited a strong coupling between his favorite shirts. Shirt 3 (his most frequently worn shirt) was often paired back-to-back with either his new MP shirt (no. 4) or new CT shirt (no. 11). His most worn shirt tended to be worn during the latter part of each week and he wore his custom shirts mostly for special occasions (verified by his end-of-study interview). Statistical analysis of his shirt use yields the following table:

| **Category** | |
|---|---|
| Possible shirt (days) | 61 |
| MM or CT (days) | 6 |
| MP (days) | 55 |
| New MP Shirt (days) | 6 |
| New MM or CT (days) | 5 |
| Number of Shirts NOT worn | 5 |
| Number of CT or MM Shirts in Wardrobe | 1 |
| Number of new MP shirts | 1 |
| Number of Existing MP shirts | 17 |
| Total Number of MP shirts in Wardrobe | 18 |
| Effective Utilization (Worn vs. Not Worn) (%) | **73.8%** |
| Ideal Shirt Utilization (Shirt Days Worn/Number of Shirts) (days) | 3.21 |
| New MC shirt (plus/minus) over Ideal Usage (days) | **2.79** |
| Ratio of MC shirts in Wardrobe (%) | 5.26% |
| MC use rate (%) | 9.84% |
| MC use difference over MP (Plus/Minus) (%) | **4.57%** |
| Ratio of New MP shirts in the Wardrobe (%) | 5.26% |
| New MP Use Rate (%) | 9.84% |
| New MP over rest of MP (Plus/Minus) (%) | 4.57% |

***Table 6-8.*** Usage patterns (subject FI-C).

In contrast to subject FI-K, this subject only has one custom shirt, but still exhibited a preference for wearing custom shirts (+ 4.57% over the average use rate for his MP shirts). He wore his CT shirt five days, which were +2.79 days over the ideal shirt utilization rate.

### 6.13 Aggregating Shirt Use Data

Shirt use data collected throughout the study was compiled into a spreadsheet in order to examine patterns across the 18 individuals and to determine overall use rates of each type of shirt in the study. The screenshot below shows a Mondrian like patchwork quilt of data from the 60-days of observation (Figure 6-56):

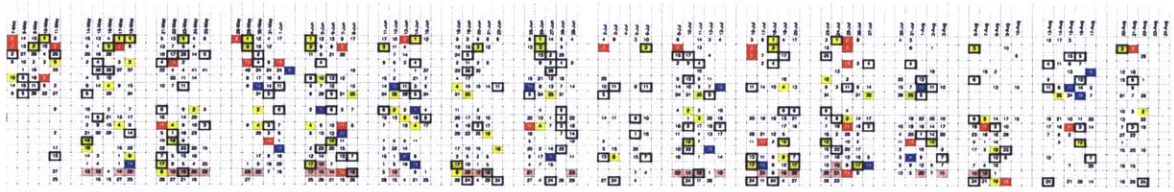


***Figure 6-56.*** Aggregate shirt use (screen shot).

Given the letter format of this paper a closer view is provide below starting with the legend describing the shirt types below (table 6-9). Note that the most worn shirts have a dark border around the box.

| x = Shirt ID Number | |
|---|---|
| Custom Tailored (new) | x |
| Custom Tailored (existing) | x |
| Made-to-Measure (existing) | x |
| Made-to-Measure (new) | x |
| Existing MP shirt | x |
| Most Worn Shirt | x |
| New MP Shirt | x |

***Table 6-9.*** Shirt type legend.

The excerpt below (Table 6-10) from the Experiment II is from the first day of observation, which started in the offices of TR. Tracking at Fidelity's office started one week later.

| Subject No. | 7-May | 8-May | 9-May | 10-May | 11-May | | 14-May | 15-May | 16-May | 17-May | 18-May | | 21-May | 22-May | 23-May | 24-May | 25-May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TR-A | 2 | 14 | 15 | 1 | 9 | | 15 | 13 | 4 | 1 | 1 | | 5 | 13 | 1 | 4 | 6 |
| TR-B | 2 | 13 | 3 | 10 | 2 | | 9 | 1 | 3 | 2 | 6 | | 13 | 7 | 9 | 4 | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TR-C | 2 | 27 | 26 | 4 | 25 | | 20 | 16 | 28 | | | | 10 | 17 | 25 | 14 | 5 |
| TR-D | 6 | 10 | 2 | 3 | 5 | | 2 | 4 | | 3 | 5 | | 4 | 13 | 2 | | |
| TR-E | | 1 | 16 | | 33 | | | 36 | 36 | 37 | 37 | | 22 | 4 | 4 | 41 | 41 |
| TR-F | 10 | 6 | 18 | 3 | | | 4 | 5 | 15 | | | | | 20 | 11 | 14 | |
| TR-G | 14 | 10 | 11 | 5 | 3 | | 8 | 14 | 4 | 9 | 15 | | 10 | 7 | 11 | | |
| TR-H | 9 | 5 | 39 | 32 | 27 | | 5 | | 29 | | 34 | | | | | | |
| FI-A | | | | | 9 | | 10 | | 3 | | 7 | | 6 | | 9 | 2 | 3 |
| FI-B | | | | | | | 11 | 9 | 21 | 13 | 17 | | 15 | | 14 | 20 | |
| FI-C | | | | | | | 2 | 9 | 10 | 4 | 6 | | 11 | 4 | 9 | 10 | 3 |
| FI-D | | | | | 2 | | 21 | 30 | 29 | | 14 | | 5 | 1 | 16 | 23 | |
| FI-F | | | | | | | 12 | | | | | | 10 | 12 | 9 | | |
| FI-G | | | | | 17 | | 18 | | | 15 | 22 | | 22 | | 23 | 20 | 15 |
| FI-H | | | | | 13 | | 14 | 3 | | 1 | 8 | | 7 | 5 | 15 | 10 | |
| FI-I | | | | | | | 1 | 4 | | 1 | 14 | | 17 | 9 | 5 | 4 | 20 |
| FI-K | | | | | 27 | | 15 | 16 | 4 | 14 | 30 | | 8 | 19 | 18 | 26 | 29 |
| FI-L | | | | | 25 | | | 16 | 15 | 27 | 25 | | 28 | 27 | 21 | 16 | |

***Table 6-10.*** Aggregate shirt-tracking data (first three weeks).

Several TR participants wore their new CT shirts as soon as the study started showing eagerness to wear their new clothing and a penchant for wearing their most worn shirts right from the start. This probably indicates that their most frequently used shirts have been frequently used far in advance of the study. Both offices exhibited this behavior.

This next snapshot illustrates the next three weeks of data from Memorial Day to June 15th (Table 6-11). The emergence of blue (MM) shirts one to two weeks later than their CT counterparts seem to point to later adoption of the shirt, perhaps the in-person follow up meeting by the CT style consultant for the final fitting played a role in the early use of CT shirts vs. MM shirts. Both shirts arrived roughly at the same time for all participants.

| Subject No. | 28-May | 29-May | 30-May | 31-May | 1-Jun | | 4-Jun | 5-Jun | 6-Jun | 7-Jun | 8-Jun | | 11-Jun | 12-Jun | 13-Jun | 14-Jun | 15-Jun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TR A | 2 | 1 | 12 | 4 | 17 | | 1 | 12 | 13 | 9 | 17 | | 17 | 10 | 2 | 1 | 12 |
| TR B | | 3 | 13 | 12 | | | 3 | 9 | 8 | 2 | | | 3 | 11 | 4 | | |
| TR C | | | 2 | | | | 11 | 6 | 21 | 28 | | | | 7 | 14 | | |
| TR D | | 13 | 4 | 9 | 13 | | | 4 | | | | | 9 | 6 | 3 | 4 | |
| TR E | | 40 | 24 | 24 | 24 | 6 | | | | | 19 | | | 1 | | 1 | 37 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TR F | | 8 | 17 | 16 | 9 | | 6 | 10 | 13 | 12 | | | 15 | 2 | | 21 | 7 |
| TR G | | 8 | 12 | 14 | 11 | | 9 | 7 | 10 | | 15 | | 14 | 12 | 11 | 3 | 9 |
| TR H | | | 31 | 5 | | | 8 | 29 | 5 | 31 | 35 | | 34 | 35 | 39 | 5 | 34 |
| FI A | | | 2 | | 6 | | 2 | 1 | 6 | 3 | 7 | | 6 | 2 | 3 | 1 | 4 |
| FI B | | | | | | | | | | | | | 19 | 13 | 3 | 18 | 9 |
| FI C | | 9 | 4 | 3 | 7 | | 4 | 9 | 10 | 11 | 6 | | 7 | | 19 | 4 | 17 |
| FI D | | | 20 | 3 | 8 | | 6 | 13 | 12 | 27 | | | | | | | |
| FI F | | | | 13 | 1 | | | | 12 | 11 | | | 7 | 5 | 9 | 11 | |
| FI G | | | | | 16 | | 2 | 23 | 20 | 15 | | | 3 | 22 | 14 | | |
| FI H | | | 17 | 9 | 16 | | 12 | 14 | | 13 | 7 | | 15 | 1 | 4 | 8 | |
| FI I | | 1 | 9 | 18 | 20 | | 17 | 10 | 7 | | | | 1 | 5 | 19 | 14 | |
| FI K | | 23 | 20 | 7 | 16 | | 17 | 15 | 14 | 13 | 18 | | 5 | 19 | | 9 | 1 |
| FI L | | 27 | | | | | 25 | 28 | 21 | 15 | 26 | | 28 | 15 | 4 | 21 | 25 |

***Table 6-11.*** Aggregate shirt-tracking data (second three weeks).

### 6.14 Shirt Use Conclusions

The table below aggregates data for the Fidelity office participants (Table 6-12). This table does not show subject FI-C and FI-K (which was shown earlier) for horizontal space reasons, but the averages include their data sets. The key metrics to consider are ideal shirt use rate (number of days each shirt should be worn) in the black box (2.33 days), average number of use days for new MC shirts (2.7 days) in red, and the average use days for the new MP shirts (4.75 days) in yellow. Fidelity participants utilized their MC shirts slight more (+0.37 days) than the ideal average, while the new MP shirt was worn even more (over 2 days more).

The aggregate effective utilization of the wardrobe was equal to 75.6%, thus nearly a quarter of all shirts were not worn at all. MC usage was slightly higher than their MP counterparts at 0.92%. Participants in the general survey expected that MC usage would be less (up to 8%) primarily because of cost and "special occasion" usage. However, this analysis points out that despite these factors, MC shirts are worn nearly equally. Based on exit interviews about half of the participants used their shirts for special occasions, whereas others treated them as a normal part of the wardrobe. Those that utilized MC shirts this way used them with such frequency pushed the study average use rate over the MP use rate.

| Category | FI-A | FI-B | FI-D | FI-F | FI-G | FI-H | FI-I | FI-L | Ave. |
|---|---|---|---|---|---|---|---|---|---|
| Possible shirt days | 35 | 55 | 51 | 33 | 44 | 53 | 51 | 50 | 48.6 |
| MM or CT days | 2 | 0 | 2 | 3 | 2 | 3 | 6 | 1 | 6 |
| MP days | 33 | 55 | 49 | 30 | 42 | 50 | 45 | 49 | 42.6 |
| **New MP Shirt days** | 6 | 4 | 1 | 8 | 3 | 3 | 4 | 1 | **4.75** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **New MM or CT days** | 2 | 0 | 2 | 3 | 2 | 3 | 6 | 1 | 2.7 |
| Number of Shirts NOT worn | 5 | 5 | 1 | 3 | 12 | 0 | 4 | 12 | 5.3 |
| Number of CT or MM Shirts in Wardrobe | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2.7 |
| Number of new MP shirts | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Number of Existing MP shirts | 12 | 20 | 28 | 11 | 21 | 15 | 19 | 27 | 18.1 |
| Total Number of MP shirts in Wardrobe | 13 | 21 | 29 | 12 | 22 | 16 | 20 | 28 | 19.1 |
| **Effective Utilization (Worn vs. Not Worn)** | 64.3% | 77.3% | 96.7% | 76.9% | 47.8% | 100.0% | 81.8% | 58.6% | **75.6%** |
| Ideal Shirt Utilization (Shirt Days Worn/Number of Shirts) | 2.50 | 2.50 | 1.70 | 2.54 | 1.91 | 3.12 | 2.32 | 1.72 | 2.33 |
| **New MC shirt (plus/minus) over Ideal Usage** | -0.50 | -2.50 | 0.30 | 0.46 | 0.09 | -0.12 | 3.68 | -0.72 | **0.37** |
| Ratio of MC shirts in Wardrobe | 7.14% | 4.55% | 3.33% | 7.69% | 4.35% | 5.88% | 9.09% | 3.45% | 10.9% |
| MC use rate | 5.71% | 0.00% | 3.92% | 9.09% | 4.55% | 5.66% | 11.76% | 2.00% | 11.8% |
| **MC use difference over MP (Plus/Minus)** | -1.4% | -4.5% | 0.5% | 1.4% | 0.2% | -0.2% | 2.6% | -1.4% | **0.92%** |
| Ratio of New MP shirts in the Wardrobe | 7.14% | 4.55% | 3.33% | 7.69% | 4.35% | 5.88% | 4.55% | 3.45% | 4.96% |
| New MP Use Rate | 17.1% | 7.2% | 1.9% | 24.2% | 6.8% | 5.6% | 7.8% | 2.0% | 9.13% |
| New MP over rest of MP (Plus/Minus) | 10.00% | 2.73% | -1.37% | 16.55% | 2.47% | -0.2% | 3.30% | -1.45% | 4.23% |

***Table 6-12.*** Shirt utilization (Fidelity participants).

The following Table 6-13 tabulates aggregate data for TR's office (8 participants). The ideal shirt utilization rate was 2.85 days (black box) for this group, while the average number of MC shirt wearing days was 3.4. Therefore we saw an increased use of MC shirt by 0.55 days. The average number of use days for new MP shirts was 6.3 days (yellow), which is 3.45 days more than the ideal.

The effective utilization of the wardrobe was 84.4%, which is better than Fidelity and the general survey average. This group also had less overall shirts and zero existing custom shirts. The average MC usage was 1.17% more than the MP average, thus showing a slight tendency to wear MC shirts over standard counterparts (much like Fidelity's at 0.92%). A portion of the

participants stated that they used the new MC shirt for "special occasions" during their exit interviews, while the rest treated them as a part of their normal wardrobe.

| Category | TR-A | TR-B | TR-C | TR-D | TR-E | TR-F | TR-G | TR-H | AVE. |
|---|---|---|---|---|---|---|---|---|---|
| Possible shirt days | 61 | 45 | 33 | 42 | 34 | 44 | 68 | 45 | 46.5 |
| MM or CT days | 4 | 9 | 1 | 4 | 2 | 1 | 5 | 1 | 3.4 |
| MP days | 57 | 36 | 32 | 38 | 32 | 43 | 63 | 44 | 43.1 |
| **New MP Shirt days** | 10 | 11 | n/a | 2 | n/a | 3 | 2 | 10 | **6.3** |
| **New MM or CT days** | 4 | 9 | 1 | 4 | 2 | 1 | 5 | 1 | 3.4 |
| Number of Shirts NOT worn | 1 | 1 | 10 | 2 | 8 | 1 | 3 | 1 | 3.4 |
| Number of CT or MM Shirts in Wardrobe | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Number of new MP shirts | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Number of Existing MP shirts | 15 | 10 | 27 | 11 | 26 | 19 | 13 | 12 | 16.6 |
| Total Number of MP shirts in Wardrobe | 16 | 11 | 28 | 12 | 27 | 20 | 14 | 13 | 17.6 |
| **Effective Utilization (Worn vs. Not Worn)** | 94.1% | 91.7% | 65.5% | 84.6% | 71.4% | 95.2% | 80.0% | 92.9% | **84.4%** |
| **Ideal Shirt Utilization (Shirt Days Worn/Number of Shirts)** | 3.59 | 3.75 | 1.14 | 3.23 | 1.21 | 2.10 | 4.53 | 3.21 | 2.85 |
| **New MC shirt (plus/minus) over Ideal Usage** | 0.41 | 5.25 | -0.14 | 0.77 | 0.79 | -1.10 | 0.47 | -2.21 | **0.53** |
| Ratio of MC shirts in Wardrobe | 5.88% | 8.33% | 3.45% | 7.69% | 3.57% | 4.76% | 6.67% | 7.14% | 5.94% |
| MC use rate | 6.56% | 20.00% | 3.03% | 9.52% | 5.88% | 2.27% | 7.35% | 2.22% | 7.11% |
| **MC use difference over MP (Plus/Minus)** | 0.68% | 11.67% | -0.4% | 1.83% | 2.31% | -2.4% | 0.69% | -4.9% | **1.17%** |
| Ratio of New MP shirts in the Wardrobe | 5.88% | 8.33% | 3.45% | 7.69% | 3.57% | 4.76% | 6.67% | 7.14% | 5.94% |
| New MP Use Rate | 16.4% | 24.4% | n/a | 4.76% | n/a | 6.82% | 2.94% | 22.2% | 6.2% |
| New MP over rest of MP (Plus/Minus) | 10.5% | 16.1% | n/a | -2.9% | n/a | 2.1% | -3.7% | 15.1% | 12.93% |

***Table 6-13.*** Shirt utilization (Technology Review participants).

Aggregate data for the both offices are tabulated in Table 6-14 (below) describes the overall use patterns for Experiment II. The ideal number of shirt wearing days was equal to 2.56 days for

each shirt, while the number of MM or CT shirt days was equal to 4.8 days (first red box) giving MC shirts a 2.24 day advantage. Translated to one year of usage, this would give nearly nine days of more shirt usage of MC shirts than MP shirts. If we count only the new MC shirts, then the average number of days is equal to 2.89 (second red box), which is also above the ideal by +0.44 days. The new MP shirt also was higher than the ideal average at 4.75 days, a 2.19 day advantage over the ideal rate. The other key metric was the plus/minus percentage difference between MC shirts over the rest of the MP shirts in the wardrobe. MC shirts, on average, were worn 1.03% (yellow box) of the time more than MP shirts.

| Category | Study Average |
|---|---|
| Possible shirt (days) | 47.7 |
| MM or CT (days) | 4.8 |
| MP (days) | 42.8 |
| New MP Shirt (days) | 4.75 |
| New MM or CT (days) | 2.89 |
| Number of Shirts NOT worn | 4.4 |
| Number of CT or MM Shirts in Wardrobe | 1.94 |
| Number of new MP shirts | 1 |
| Number of Existing MP shirts | 17.4 |
| Total Number of MP shirts in Wardrobe | 18.4 |
| Effective Utilization (Worn vs. Not Worn) (%) | 79.55% |
| Ideal Shirt Utilization (Shirt Days Worn/Number of Shirts) (days) | 2.56 |
| New MC shirt (plus/minus) over Ideal Usage (days) | +0.44 |
| Ratio of MC shirts in Wardrobe (%) | 8.71% |
| MC use rate (%) | 9.74% |
| MC use difference over MP (Plus/Minus) (%) | +1.03% |
| Ratio of New MP shirts in the Wardrobe (%) | 5.40% |
| New MP Use Rate (%) | 12.93% |
| New MP over rest of MP (Plus/Minus) (%) | 6.18% |

***Table 6-14.*** Shirt utilization (entire study).

New MC vs. New MP

The new MP shirt was placed into this experiment in order to have another new shirt to in the participant's wardrobe to compare on price and newness. Over the course of the study, the new MP shirt outperformed the new MC shirt (4.8 days for MP vs. 2.89 days for new MC) by nearly two more shirt-wearing days. We asked participants why this was the case and a common response was that the craftsmanship of the new MP shirt which was typically branded was higher, even though it was not custom. The second reason was that the new MC shirt had the additional constraint applied by about 50% of participants of being designated as a "Special Occasions" shirt, therefore the opportunity to wear it was lower. However, when it was worn, the perceived value was very high as evidenced by the many positive responses on not only the end-product but also the process (see end-of-study interviews in appendix). It is worth noting that if we add the existing custom shirts from the participants, then the total MC usage average is nearly identical to the new MP shirt at 4.8 MC shirts vs. 4.75 new MP shirts.

Summary of Shirt Usage

This experiment has proven that is it possible to observe and accurately gather data on "Post-Transaction" retail product use in an unobtrusive manner in an office environment. The results of the experiment point to utilization rates of MC dress shirts as slightly higher than that of MP shirts. This may seem not to be a revelation. But it does dispel the belief held by many that MC shirts are only utilized in special occasions because of the level of customization and cost of the shirt. Participants in the general survey expected to use MC shirts up to 8% less than MP shirts, but the 1.03% advantage that MC shirts have seem to point to the additional utility that MC shirts exhibit. A number of other factors may influence this evaluation including novelty effect, cost differences, and the set-up of the experiment which will be discussed in the next chapter (conclusion). This chapter will also integrate responses from the end-of-study interviews and synthesize the results from the rest of the study (General Survey, Experiment I). It will also provide an evidence-based guide for guiding manufacturers to become more sustainable and consumers to practice better consumption.

# Chapter 7

# Conclusion

## 7.1 Introduction to Conclusion

This chapter summarizes the key findings from the thesis used to test the hypothesis and answer research questions raised in Chapter 2 and in the introduction (Chapter 1). The first part of this chapter will address the three key research questions on methods, environmental benefits, and opportunities for new models of consumption. The second section synthesizes approaches developed in this study and the data gathered to create an evidence-based guide for making environmental decisions for manufacturers and consumers. The third section highlights the hidden costs of carbon and discusses how the true cost of carbon will affect manufacturers and consumers. The fourth section discusses the emergence of the concept of Responsible Consumerism as a new ethos to be embraced not only by a select few environmentalists, but by a much wider demographic including those that design and engineer products, those that consume them, and finally those that regulate their safety and use. Finally, this chapter describes the limitations of this study and how future studies can address those issues and explore new research and design possibilities.

### 7.2 Thesis Time Line (Chapter 7)

| Chapter 3 | Chapter 4 | Chapter 5 | Chapter 6 | Chapter 7 |
|---|---|---|---|---|
| Environmental Impact Analysis of MP and MC | Quantitative Survey of Shirt Usage and Ownership Patterns | Experiment I: Shirt Acquisition and Follow-up Survey | Experiment II: Shirt Tracking and Use Patterns | **Conclusion** |
| Desk Research | 750 Respondents (276 used in analysis) | 18 participants | 18 participants | All Respondents and Participants |
| Interviews with MC and MP shirt makers | Survey of Shirt Owners of: MP and MC shirts | Acquisition of new shirts: 8 Made-to-Measure (MM), 10 Custom Tailored (CT), and 18 MP | Shirt Cataloging and Shirt Tracking (60 days of shirt data) | Data Visualization and Analysis |
| Oct 15 (2009)-Aug 31 | Jun 15 - Dec 22 | Acquisition + Survey (Feb 16-Mar 16), Design of Tracking System (Oct 15-May 7) | Cataloging (Apr 13-23), Tracking (May 7-Aug 31) | Aug 1-31 |
| 2009 to 2012 | 2011 | 2012 | 2012 | 2012 |

***Table 7-1.*** Thesis time line (Chapter 7).

### 7.3 Answering the Research Questions

Three major research questions were addressed in this thesis. They were:

1) How can we create a methodology for gathering and analyzing data about environmental benefits directly attributable to consumer behavior?
2) Does the current model for MC and MP dress shirts provide demonstrable advantages over others and in what conditions?
3) What are the opportunities for developing new models of consumption that are more environmentally sustainable than the current practice?

### 7.4 Question 1: Creating a New Methodology

The first question on methodologies was explored in Chapter 3 (Environmental Impact Analysis), Chapter 4 (Quantitative Survey), Chapter 4 (Experiment I), and Chapter 6 (Experiment II). The environmental impact study established a framework to understand the fundamental and subtle differences between all models within MP and MC including MP online and offline as well as two different models for MC (Made-to-Measure (MM) and Custom Tailored (CT) in the production and distribution flow from both the manufacturer and consumer's point of view. This framework enabled the analysis of carbon emissions from the transportation of goods (shirts) and people (consumers, style consultants, retailers) as well as other environmental metrics like waste and returns.

The Quantitative Survey developed methods for gathering data from a very broad audience (over 700 participants) about ownership, retail decision-making, maintenance, and use patterns, while in Experiment I, we were able to gather in-depth data on the shopping experience of subjects that would participate in the extended study. Data gathered in this acquisition phase by the experiment participants could then be compared to results from the Quantitative Survey. Also, carbon emissions could be calculated on the actual trips to acquire shirts to compare the study vs. typical scenarios.

Finally, Experiment II accomplished two major goals with respect to methodology. The first was to design, fabricate, and deploy a tracking system utilizing the latest RFID technology that could reliability and unobtrusively capture data on consumer use patterns after the retail experience. The second goal of Experiment II was to develop methods to visualize and analyze the captured data into a digestible form in order to create evidenced-based guidelines for manufacturers and consumers (discussed later in this chapter). The combination of all these methods developed in Chapters 3-6 is critical to being able to answer the second and third research questions. An additional benefit from the creation of this methodology will be the ability of future users to customize this analytical process for other more complex products and services in other industries.

Thesis Contribution on Methods

This thesis has developed methods for capturing real data on consumer behavior from the moment the consumer decides to engage in the shopping process all the way to the final use of the product (60 days). This data at this level of granularity is extremely valuable, not only to researchers, but also to manufacturers and retailers that often do not have any data after the retail experience. This is especially true in the apparel business as the only indicator on use, besides internal product life-cycle analysis, is repeat sales. This study examines the actual use patterns, which are often different than customer or manufacturer expectations which factor into the assumptions built into standard product lifecycle analyses.

The gathering of "Post-Transaction" Data has many other dimensions that are useful for the retailer. For example, retailers can determine which products are worn most, least, or not worn at all. They can examine which materials or color palettes were actually worn, so that they can optimize fabric forecasts. Manufacturers can integrate this information into new product lines much more quickly and not rely as much on traditional marketing data which is partly responsible for the waste in forecasts, and push-based models.

This methodology provides real-time data on use which was not explored in this thesis. The data captured in the tracking phase was analyzed and visualized near the end of the study, so that it could be presented to an academic audience. But manufacturers and retailers can take advantage of data coming in at millisecond levels of detail. The tracking towers at Fidelity and the Technology Review captured over 22,000 individual reads in four months, which is equivalent to 478 individual readings for each participant (or 26 readings for each day they wore a tagged dress shirt) in the study. The challenges for utilizing this data will not be technological, but rather relate to the privacy and security of this data (also not explored in this thesis).

This thesis utilized a "Sum of Methodologies" in order to tackle research questions by using a multi-faceted approach using multiple methods (impact analysis, ethnographic observation, surveys, experiments, and interviews). These methods, coupled with the latest sensing technologies like that of RFID, provide a lightweight and unobtrusive window into human behavior and can help form a framework for investigation into questions beyond carbon footprints.

### 7.5 Question 2: What are the MC Advantages over MP?

The second question builds upon the framework developed in question one. There are distinct advantages for each production model at every stage and sub-stage of the manufacture, distribution, and use of the product. Many of the advantages are offset because of wasteful practices either upstream or downstream. However, assessments can be made of the total product lifecycle if data is readily available. Earlier studies (Chin and Smithwick, 2009) proved that obtaining data on the manufacture of MP shirts was difficult, while interviews with both MC and MP providers seem to corroborate a wide range of reported levels of waste in manufacturing. In both models, therefore, this research concentrated on the distribution of MC and MP products.

This thesis focuses primarily on the transportation of dress shirts from the location of manufacture to the point of use, rather than on the physical infrastructure of the distribution network (see the Limitations of Study section of this chapter). The top carbon performer, when factoring in transportation of goods over vast distances, movement of people to retail locations, and waste created by returns, was MP online at 0.28lbs of $CO_2$ to deliver one shirt to a typical consumer. The second best performer was MM at 1.08lbs of $CO_2$. The table below (Table 7-2) ranks each production model in terms of carbon performance. This table expresses the "Typical Scenario," described in Chapter 3, which projects normal shipping conditions for each manufacturer. For example, 9Tailors (CT) typically visits 10-15 clients during one office visit, while Blank Label typically ships two shirts per order, and MP offline customers typically travel 8.2 miles in one direction in an automobile with a fuel efficiency average of 21 MPG (US vehicle fleet fuel economy in 2011):

Table 7-2 (below) ranks each production model in terms of carbon performance:

| Typical Scenario | | |
|---|---|---|
| **Rankings** | **Production Model** | **$CO_2$ (lbs)** |
| 1 | Mass Production (Online) | 0.28 |
| 2 | Made-to-Measure (Blank Label) | 1.08 |
| 3 | Custom Tailored (9Tailors) | 2.16 |
| 4 | Custom Tailored (Dillon Road) if customer is in NYC | 2.25 |
| 5 | Mass Production (Offline) | 18.59 |
| 6 | Custom Tailored (Dillon Road) Typical LA Scenario | 23.81 |

***Table 7-2.*** CO2 emissions ranking for MP Online/Offline, MM, and CT models (Typical Scenario).

MP Offline was the worst performer, primarily because of the carbon emissions created by the consumer driving their private automobile to a retail location. (94.1% of general survey participants traveled by automobile an average distance of 8.2 miles in one direction.) Even with returns at nearly 40%, MP online simply outperformed the other models with a combination of container ship freight and truck distribution. While CT and MM models both employ carbon intensive air shipping of their product, the $CO_2$ (0.95lbs) devoted to flying shirts long distances was still over 16X better than a customer driving their own vehicle a tiny fraction of the distance (15.29lbs). CT production preformed worse than MM because of emissions due to the travel of style consultants. However, if they are able to bundle customers on a single trip (which is part of their business model) they can nearly match the carbon output of MM.

Another major metric of environmental performance is the waste created by returns. All returns

generate additional trips by either the customer or retailer (usually through truck pickup) and thus adding to the waste of stocks due to movement and transportation. The clear winner in the battle of returns is MC (at less than 10%) over MP Online and MP Offline at approximately 40% and 20%, respectively (RLEC, 1999). MP industrial standards for return rates were difficult to obtain, but for this study MC manufacturers were more transparent with their data. Both CT and MM manufacturers kept their return rates below 10%. 9Tailors, a Boston based CT, was able to lower return rates to just 5% by offering localized alterations to further minimize waste. (Often a whole new custom shirt must be made if it has left the manufacturer in Asia.)

Summary of MC Advantages

The combination of Experiment I and II demonstrated that MC shirts exhibit nearly the same, and in many cases, slightly better utilization than MP at a +1.03% improvement, dispelling the popular perception that MP shirts are utilized more because MC shirts are "special occasion" shirts and more expensive than traditional MP shirts. The ideal average shirt usage per shirt for the study was 2.56 days based on the total number of possible wear days over the total number of shirts. The ideal shirt utilization rate provides a baseline to compare over- or under-utilized shirts. Shirts that were not used or used infrequently would fall below this level, while the most worn (often favorite but not mutually inclusive) would be utilized over this threshold. MC shirts in this study were worn an average of 4.8 days (+2.24 days over the ideal utilization), showing a greater utility over the average MP shirt. Interestingly, the new MP dress shirt in the study was also highly utilized and nearly identical to all MC shirts at 4.75 days (+2.19 days over the ideal utilization). In exit interviews, many participants actually liked their new MP shirt more than the new CT shirt. We believe the higher expectation levels created by the marketing, promise, and co-creation process of MC shirts can account for this difference. Yet, despite the difference in use rates as compared to the new MP shirt, the majority of participants were able to extract perceived value from the MC experience (Merle et al. 2010).

### 7.6 Question 3: Opportunities for New Models of Consumption?

It is not abundantly clear to the normal observer that a change is required of our current production models. Even with one third of total revenue lost to waste ($300B), many manufacturers do not want to fully embrace disruptive technologies and strategies since the existing models are still profitable (Sanders, 2005). Disruptive models like MC are treated as minor threats to core business practice and relegated to "Niche Markets." At best, they are embraced as a marketing strategy at the level of a pilot (Piller, 2004). Below is a short list of the opportunities created:

Opportunities Created by Climate Change – Further examination reveals the non-obvious conclusion that many external forces threaten current production practices. The first major threat (and focus of this study) is the impact of climate change on our currently wasteful practices. Currently, MP manufacturers only care about the amount of $CO_2$ emitted by their organization (which is low compared to the consumer), if they care at all. However, if we include the carbon emitted by the end-user, then the impact of MP offline retail is 66X that of the best model of MP online (0.28lbs vs. 19.59lbs). The lack of progressive environmental policy, especially in the United States, in the form of carbon tax or higher gasoline tax, basically makes this a non-issue for MP retailers. However, the continued rapid urbanization of the globe and downward car-ownership trends in people aged (18-35) means that this will be a problem in the near future.

Opportunities Created by the Emergence of Smart Phone Shopping – The second impact area is the amount of embodied and operational energy within the retail distribution chain, which include the regional and local distribution centers as well as retail stores (many of which are located in

high value urban real estate). Many big box retailers are now suffering from lower sales due to the emergence of Smart Phone shopping – that is, shoppers using retail centers to touch and feel the product, but then buying online from another retailer at a lower price (here, often with the assistance of Smart Phones). The financial and environmental costs of running a high-energy physical environment are now starting to outweigh diminished sales volume. This study did not focus on the carbon impact of the physical non-moving infrastructure of retailing because that level of complexity warrants another research project. However, this emerging trend should be a concern of all big box retailers.

Opportunities Created by MC Itself –The third area of impact is the promise of MC itself. The many benefits of MC are documented throughout this thesis (especially in Chapter 1) and echoed by the test subjects themselves. The majority of participants enjoyed the customization process, and were generally happy with the end product. In some cases, they experienced an emotional connection to the product. However, the cost level seemed to still be the highest barrier to a wider adoption of MC. Most participants felt that the current costs levels were 30-40% too high for them to fully embrace MC. This willingness to pay premium (~60-80$) would be 1.5 to 2X the average price of a shirt from the general survey ($39.39). This follows closely to the price premium for custom vs. standard watches (Franke et al. 2004). This poses a "Chicken and Egg" predicament for the MC industry because in order to approach those price levels, sales volumes must increase dramatically. Yet the current price levels prohibit accelerated growth. Another set of barriers is the need to manufacture product at vast distances from the consumer and the need to ship a product expeditiously and in a high-carbon fashion (air freight). However, this has not stifled the emergence of numerous small-scale online MC retailers in the last five years, thus providing an indicator of the interest by entrepreneurs to engage in new models. In addition to start-ups, many large-scale retailers now have some online customization presence. The results of the study clearly demonstrate space for innovation opportunities and the need to rethink our current models for the production, distribution, and use of, not just of apparel, but also of the many products and services they mimic at multiple levels.

## 7.7 Smart Customization: Evidence-Based Guide for Environmental Decisions

This thesis has provided the opportunity for an in-depth study of the manufacture, distribution, and use of men's dress shirts and has revealed both obvious and non-obvious assessments from an environmental sustainability viewpoint. It is clear that driving an automobile is more wasteful than using public transit. However, it is not obvious that flying a shirt halfway around the globe is much less wasteful than driving to the mall by as much as 16 times. It is also not obvious that a 16-ton delivery truck is 24X more efficient in delivering goods than a customer using an automobile. It is also clear that offline retail environments require much more built infrastructure than online retail, but it is not obvious that a big energy advantage has benefited online retailers because of external forces like the growth of Smart Phones and online trust networks. These assessments are not just specific to men's dress shirts and apparel, but to many products that can be mass produced or mass customized. They include products ranging from small size, but high value products like mobile phones, jewelry, books, and consumer electronics (in general), to large-scale products like automobiles, furniture, and pre-fabricated homes. All of these products follow similar, albeit more complex in some cases, steps in the product lifecycle.

The observation, comparison, and analysis of current production models has given us an opportunity to imagine a new model for achieving a low-carbon and customizable product offering by focusing on the following guidelines:

Moving Goods, Not People – The carbon accounting performed in this study shows the environmental benefit of transporting goods rather than people. In virtually every case, the production models that do not require the movement of the consumer or retailer (style consultant in the case of CT) yielded up to a 30X improvement, even with up to 40% returns and airfreight from overseas manufacturing. This guiding principle, coupled with improvements in reducing returns and local manufacturing, discussed in the other points below, will dramatically reduce carbon footprints, particularly with regard to distribution.

Pull-Based Marketing – The use of On-Demand production models inherent in MM and CT models to radically reduce waste in overproduction, waiting, transportation, processing, waste of stocks, and movement (Sanders 2005). The Sanders Consulting report on the textile business estimates that one-third of all revenue is lost due to waste per year, i.e., equal to nearly $300B. One aspect of waste directly attributable to the current push-based production model is the high rate of returns. Returns for MP Online (~40%) and MP Offline (~20) can be attributed to poor matching between consumer needs and manufacturing output. On-demand production based on pulling orders from customers can begin to address this issue. As a comparison, the automobile industry in the US significantly lags behind Europe and Japan on the use of Build-to-Order production which has the capability to dramatically reduce inventory costs and waste in the system which was reported to be as high as $3650 per vehicle (Holweg and Pil, 2004).

Persuasive Web Interfaces – Intuitive web interfaces can encourage the more environmentally sound customer choices. The key areas of improvement include the carbon content on delivery, use of more sustainable and recyclable materials, and the reduction of wardrobe size. The speed of delivery directly affects carbon emissions (e.g., 1-2 day delivery is typically via airfreight). Promoting more environmentally sound and typically longer lead times by providing not only pricing that reflects that desire, but also interactive tips or hints can be effective. Another strategy is to organize materials based on their carbon intensity for manufacture and then use and price accordingly. Evidence gathered in this study shows that most men (55.7% in General Survey, 75.6% in Experiment II) do not wear all of their clothing (33.2% wear half or less). This data can be utilized in a persuasive interface to illustrate the cost savings created by elimination of waste (shirts not worn in this case) and the benefit of spending the savings on a highly customizable yet smaller wardrobe. The concept of optimal wardrobe size may sound counter-intuitive to manufacturers, just like car sharing to automakers, but it has the potential create a new service-based business focused not on the design of singular shirts, but on the customization of wardrobes.

Low-Cost Sensing – The use of low cost sensing technologies like washable RFID (used in Experiment II) and NFC enabled tags by embedding them into products. Many retailers already utilize tags, but only for security reasons. These tags are typically active and bulky, and therefore are useful only within the store environment. New tags are durable, lightweight, and are nearly imperceptible. Sensing can provide benefits to both the manufacturer and consumer by allowing for the collection and analysis of data. Consumers with Smart Phones can utilize NFC technologies to access information about products as they browse, while manufacturers can capture the number of hits for each product. The controversy over the use of RFID technology by manufacturers will need to be overcome in order to fully realize the power of ubiquitous low-cost sensing, especially in the apparel business. It will be necessary to introduce new "Trust Networks" that manage personal and private data with the appropriate technology and public policy to augment the existing Bill of Consumer rights to include power of access and control of one's own private data.

As RFID enabled Smart Phones emerge, consumers can tap into the benefits of tracking apparel usage as explored in this thesis. New high-value applications on their Smart Phones can be created that can inform the user of their use patterns, so they can make smarter decisions on

purchases. For example, a Smart Phone app can tell the user that he has worn a light blue shirt 45% of the time, and make suggestions of shirts that should be donated or consigned (e.g., to donate that striped red shirt that was worn once three years ago). Such an application can aid users to better utilize their existing wardrobes. For example, a wardrobe of 10 shirts and 10 pairs of pants can make 100 combinations. An application that utilizes color theory can then filter out poor color combinations, thus the 100 combinations are reduced to a smaller number (say, 60). This new application can inform the user that he has used only 15 of the possible 60 good combinations, thus another 45 were never even tried. Taking this one step further, manufacturers can suggest a set of shirts, that would take the 60 good combinations and increase this by an order of magnitude by simply purchasing two new shirts, therefore amplifying their existing wardrobe based on the use of color theory. If this model were to combine other elements of the wardrobe including jackets, t-shirts, socks, jewelry, etc. the, number of combinations becomes exponentially expansive. This new app would provide then a simple guide to this complex and massive solution space.

Miniaturizing Retail Environments – Radically downsize physical retail environments by eliminating excess inventory to create customizable and transformable product experience centers on the scale comparable of urban boutiques. This strategy maintains the crucial touch and feel aspect of shopping (still lacking from the MM model), yet greatly reduces high-energy costs and carbon emissions. Electronic giants like Apple, Sony, and Microsoft have created showcase stores which focus on experience rather than on the display and storage of products. The morphing of the electronics showcase concept for apparel would entail the creation of prototype concept stores that utilize dynamic displays, transformable furniture, product demonstration areas, and potentially have space for design consultation. The newly created mini-stores also can serve as the sizing interface between customers and manufacturers through either the introduction of 3D body scanner or even by physical measurements by style consultants. Stores become the physical interface to the customer and the gateway to online purchasing by mitigating the fit problems of touch, feel, and try.

Another version of the urban boutique is a Mini-Retail environment or pod-like store that could be implemented directly into office buildings or places of work. This brings the retail experience to where the customers are located and takes advantage of the CT's "Hong Kong Style" Tailoring model and cuts emissions based on extra travel since many customers are already commuting, thus maximizing efficiency of trips. Retail pods can be designed to be mobile in order to provide a dynamic environment which can respond to changes in location, time, season, and local events. These mini-retail pods can also provide high-value services like style consulting, including ideal measurements for many types of apparel (not just dress shirts), therefore further reducing the problems of fit as well as touch and feel.

Maximizing the Power of Customization – Based on the evidence gathered in this study, fit was the top reason for not wearing shirts and returns for each major ownership category. It was also the top shirt characteristic that consumers seek when shopping for a new shirt (Table 7-3):

| Fit | MP | MP + MM | MP + CT | MP + MM + CT |
|---|---|---|---|---|
| Reason for Not Wearing | 38.5% | - | - | - |
| Reason for Returns | 54.7% | 51.7% | 50.0% | 58.3% |
| Shirt Characteristic | 38.4% | 40.0% | 33.0% | 70.6% |

***Table 7-3.*** Role of fit in consumer behavior.

One of the core benefits of MC shirts is the ability to provide exacting fit, but the barrier of web measurement tools seems to have stifled growth. MM participants in Experiment I were only 60%

confident of their designs without physically trying the shirt, while 50% were confident of their designs without physically touching or feeling the design. Ironically, 40% of MP offline participants in the same experiment did not physically try on shirts when they were in the store. The power of customization can solve these problems. However, retailers that are not already practicing MC either need to shift into customizable production models, develop parallel business units or pilot these new models. For retailers already practicing MC, improvements must be made on existing measurement tools since returns are still significant at 10% for Blank Label and Dillon Road, and 9% for 9Tailors. (Measurement tools are not entirely to blame for returns in MC as quality control also contributes to returns). MM retailers may want to consider the strategic introduction of Mini-retail stores, as suggested above, to not only expand their physical presence, but also to improve customer fit and to overcome touch and feel issues especially for first time customers (Blank Label provides fabric swatches with each purchase for future sales).

Customizable Clones – Table 7-4 (below) describes the percent of wardrobe utilization by the top one through five shirts within each participant's wardrobe as well as aggregate totals. The average of the top two shirts worn in the study was equal to 19.2% of all shirt utilization. The top three shirts were used 26.5% of the time, while the top five (one week's worth of clothing) was utilized at a rate of 38.3% of the total wardrobe. The most worn shirts were utilized often because of fit, comfort, and the ability to match as verified by end-of-study interviews (see appendix).

| | Total Shirt Days | Top shirt (Days) | Top Shirt Utilization of Wardrobe (%) | Top 2 shirts (Days) | Top 2 Shirt Utilization of Wardrobe (%) | Top 3 Shirts (Days) | Top 3 Shirt Utilization of Wardrobe (%) | Top 4 Shirts (Days) | Top 4 Shirt Utilization of Wardrobe (%) | Top 5 Shirts (Days) | Top 5 Shirt Utilization of Wardrobe (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **TR-A** | 70 | 10 | 14.3% | 19 | 27.1% | 27 | 38.6% | 34 | 48.6% | 40 | 57.1% |
| **TR-B** | 45 | 11 | 15.7% | 20 | 28.6% | 27 | 38.6% | 32 | 45.7% | 35 | 50.0% |
| **TR-C** | 36 | 3 | 4.3% | 6 | 8.6% | 9 | 12.9% | 12 | 17.1% | 15 | 21.4% |
| **TR-D** | 42 | 11 | 15.7% | 20 | 28.6% | 24 | 34.3% | 28 | 40.0% | 32 | 45.7% |
| **TR-E** | 33 | 4 | 5.7% | 7 | 10.0% | 10 | 14.3% | 13 | 18.6% | 16 | 22.9% |
| **TR-F** | 44 | 4 | 5.7% | 8 | 11.4% | 11 | 15.7% | 14 | 20.0% | 17 | 24.3% |
| **TR-G** | 68 | 11 | 15.7% | 21 | 30.0% | 30 | 42.9% | 36 | 51.4% | 42 | 60.0% |
| **TR-H** | 49 | 10 | 14.3% | 20 | 28.6% | 28 | 40.0% | 35 | 50.0% | 38 | 54.3% |
| | | | | | | | | | | | |
| **FI-A** | 35 | 8 | 11.4% | 15 | 21.4% | 21 | 30.0% | 25 | 35.7% | 28 | 40.0% |
| **FI-B** | 56 | 6 | 8.6% | 12 | 17.1% | 17 | 24.3% | 21 | 30.0% | 25 | 35.7% |
| **FI-C** | 64 | 10 | 14.3% | 17 | 24.3% | 23 | 32.9% | 29 | 41.4% | 35 | 50.0% |
| **FI-D** | 51 | 3 | 4.3% | 6 | 8.6% | 8 | 11.4% | 10 | 14.3% | 12 | 17.1% |
| **FI-F** | 33 | 8 | 11.4% | 12 | 17.1% | 16 | 22.9% | 19 | 27.1% | 22 | 31.4% |
| **FI-G** | 44 | 6 | 8.6% | 12 | 17.1% | 18 | 25.7% | 23 | 32.9% | 27 | 38.6% |
| **FI-H** | 53 | 6 | 8.6% | 11 | 15.7% | 15 | 21.4% | 19 | 27.1% | 23 | 32.9% |
| **FI-I** | 52 | 6 | 8.6% | 11 | 15.7% | 16 | 22.9% | 21 | 30.0% | 25 | 35.7% |
| **FI-K** | 54 | 5 | 7.1% | 9 | 12.9% | 12 | 17.1% | 15 | 21.4% | 18 | 25.7% |
| **FI-L** | 57 | 10 | 14.3% | 16 | 22.9% | 22 | 31.4% | 27 | 38.6% | 32 | 45.7% |
| **Ave.** | **49.2** | **7.3** | **10.5%** | **13.4** | **19.2%** | **18.6** | **26.5%** | **22.9** | **32.8%** | **26.8** | **38.3%** |

***Table 7-4.*** Wardrobe utilization by top five shirts.

The remainder of their shirts that are worn much less or not at all, or have fallen out of favor because they don't fit (38.5%), have been worn out (39.3%), out of style (26.2%), forgotten (19.3%), or a unwanted gift (16.0%).

The best way to dramatically decrease waste and to maximize use is to identify the most worn shirts and create *Customizable Clones* – that is an ideal prototype (or Bespoke pattern) for each individual that possess all the fundamental features like fit and finish, yet have customizable features to create the required variety in terms of fabric and components (collars, plackets, cuffs, etc.). Many online manufacturers of MM shirts allow customers to send an existing shirt, so that the measurements can be replicated. But very few if any, act as replicators. Most MM manufacturers will create a new shirt based on measurements of an existing shirt that you send, out of fabrics they have in their inventory and if the sent shirt has features (special cuffs, specific cuts, stitching, etc.) that they do not have in their solution space, then the consumer will sacrifice. Customizable Clones creates the opportunity, not to simply replicate the most worn shirts (this does not really exist today except for parts of China and Hong Kong), but to establish a new industry that maximizes the potential of time already spent searching through trial and error for the ideal shirt.

An additional feature that can be built into Customizable Clones is the creation of a proactive interface that suggests variations to the clone based on the customer's profile. Variations will be necessary for the creation of fit profiles for other types of apparel. For example, the fundamentals of the clone provide the basis for creating the dress shirt bespoke pattern. However, it would be useful to use the same model for creating a bespoke pattern for a suit or perhaps a pair of jeans. The proactive interface should not require much intervention from the customer except for some key preferences.

Smart Materials – Survey results from this thesis point to wrinkled clothing as the number one reason why shirts are either washed or laundered, not because they are smelly or dirty (although they are significant factors as well). A product lifecycle analysis conducted by Levi Strauss on their 501 jeans in 2009 determined that over 58% of the jean's environmental impact (Cradle-to-Grave Energy Use) was because of use by the consumer. Up to 48% of water consumption is also taken by use. By cutting washing in half, the amount of energy in the care of jeans is reduced by 40% and by 35% for water usage (Levi Strauss 2009). 46.6% of respondents in the general survey washed their shirts after every use, no matter the condition, while 32.2% washed after every second use. The simple integration of wrinkle free and more environmentally sensitive materials into product offerings with accompanying persuasive web interfaces will dramatically improve sustainability.

Local Production – Invest in local production, if it is economically possible. This is currently not feasible for the men's dress shirt business because the costs for labor and facilities are still more than 2.5 times the cost in production in Asia, including the price of shipping (Bi 2012). Also, the quality and skill level of shirt manufacturers are simply not present (Shih 2012). However, this is could be less of a problem in many other industries were labor cost not the main driver of plant placement. The development of low cost fabrication technologies spurred by the personal fabrication, DIY, and Maker communities have the power to enable localized production. Coupled with developments in robots that are "low-cost, easily programmable, not fixed and not dangerous" (Brooks 2012), localized production is able to not only reduce emissions because of transport but also inject economic development into the markets they serve.

### 7.8 The True Cost of Carbon

Climate change inaction is a symptomatic problem caused by a number of hidden costs that are embedded into every aspect of our society. For example, gas taxes help fund national road infrastructure projects, however most of it goes into general revenue. The remaining funds to build our roads come from either state or federal taxes, even though some people do not even drive at all. The hidden cost of utilizing various energy sources depends not only on the cost of extraction, refinement, and delivery, but it also includes the cost to the environment (in the form of carbon emissions) as well as health and social costs (Greenstone and Looney, 2011). These costs are not paid for directly by the consumer, but are absorbed by society. Often this societal cost seems small and is not felt by the end-user, but collectively, the costs are damaging. Economists call these societal costs, "Negative Externalities" and these are costs external to the parties directly involved in the transaction loop. The classic example of a negative externality is congestion. For every extra automobile on the road, the more congested the road becomes and the more pollution is spewed into the atmosphere. Each driver does not feel the effects of pollution since it is so tiny, but collectively, he/she contributes to local smog and globally to climate change. Drivers do, however, feel the effects of congestion almost immediately. Thus measures like congestion pricing in places like Singapore and London have been implemented to mitigate the negative externalities. A recent report by Michael Greenstone and Adam Looney reveals the true cost of carbon by analyzing the hidden costs in energy use:

> "...we estimate that it costs about 3.2¢ for an existing coal plant to produce a kilowatt hour (kWh) of electricity. This appears to be a bargain but the reality is that this kWh causes 5.6¢ of damages to our wellbeing. Although these costs are not listed on our monthly utility bills, they are nevertheless real—they show up in shorter lives, higher health-care bills, and a changing climate that poses risks to our way of life. Put bluntly, the true cost exceeds that on our utility bills by more than 170 percent." (Michael Greenstone and Adam Looney, "A Strategy for America's Energy Future: Illuminating Energy's Full Costs," Hamilton Project, 2011, p. 7).

They estimate that the Societal Cost of Carbon (SCC) is equal to $21 per ton of $CO_2$, which projects to an additional cost of $16,000 for every car that is driven 150,000 miles or roughly 20% of the lifetime cost (Greenstone and Looney, 2011). If such costs were realized through a carbon tax, cap and trade, or other policies to limit greenhouse emissions, then this would dramatically affect not only the current production processes studied in this thesis, but also impact the world economy.

If we apply the SCC just to the transportation of dress shirts, the effect will be evident. The estimate of total carbon devoted to the transport of MP offline of a single dress shirt is 21.28lbs of $CO_2$ from Table 7-2 (in Question 2 of this chapter). Dividing one ton (2000lbs) by 21.28lbs yields approximately 94 shirts, thus the extra SCC per shirt will be $0.2234. If the average cost of the shirt in the quantitate study is $39.39 then this represents a 0.5% additional cost. This may not seem to be a lot. However, if we examine the equivalent SCC for MM then the extra cost would be equal to $0.0113. The ratio of these two SCC's is nearly 20X. This is due to the lower emissions within the MM model and when applied to the overall cost of the custom shirt (which is much higher), this percentage is negligible.

The estimated contribution to carbon emissions of product transportation is roughly 6% in the case of Levis Strauss's product lifecycle analysis of their 501 jeans (Levi Strauss, 2009). If we use this estimate and apply it to shirts, then we can scale the SCC cost for MP shirts from $0.23 to $3.83, which yields an additional cost increase close nearly 10%. This is higher than the sales tax in many states in the US. The additional cost for MM shirts would then equal to $0.18. The

true cost of carbon has dramatic implications on future consumer behavior, therefore placing even more importance on our rethinking of current production, distribution, and use models.

### 7.9 Responsible Consumerism

The documentary series "Hoarders" portrays the life struggles of compulsive hoarders who continue to amass vast amounts of consumer products without ever discarding or curbing the acquisitions until their homes become fire hazards and relationships with close family members and friends are strained. Much of the hoarding is of seemingly useless objects or multiples of the same products. None of the participants in this study are remotely close to being shirt hoarders (although two subjects had to reduce their wardrobe to fit the maximum shirt requirement of 30 shirts), but the symptoms of waste and lack of use is emblematic of a much greater societal problem with excessive consumerism. The massive issues of global climate change can be considered attributable to human interventions, due in part, to collective excess by the consumer class (mostly Western Europe, Japan, USA). Unfortunately, the culture of excess by today's consumers is now found in the developing world. For example, China has recently become the number one consumer of automobiles per year (13.6M vehicles) surpassing even the US in 2010, as reported by Bloomberg news (Bloomberg 2010). Yet China is not even close to the car ownership levels in the US at approximately 250 vs. 850 cars per 1000 persons (Mitchell et al. 2010). Closer to the apparel industry is the emergence of concepts like Fast Fashion, developed in the 1980s and 1990s, which have created a disposable class of clothing adding to the ever-growing volume of waste. It is estimated that each US citizen throws away about 70lbs of clothing per year of which only 15% can be recycled, and that this trend is increasing (Council for Textile Recycling 2012).

Environmental sustainability advocates have called for the adoption of energy efficiency and conservation strategies as the mechanisms for achieving carbon neutrality. However, achieving the target goals set by the Kyoto Protocol of 1997 will be extremely difficult, especially without the ratification of the treaty by the United States. Complicating the energy efficiency strategy is "Jevons Paradox." William Stanley Jevon's study of the British coal industry in the 1860s found that the technological innovations that make improvements in the efficient use of a resource tend to also increase the consumption of that resource (Jevons 1865).

Learning from the FDA

Another issue impeding environmental progress is the lack of standards for carbon emissions comparable to the FDA's Nutrition Facts Label (see below):

**Nutrition Facts**

Serving Size 1 cup (228g)
Servings Per Container about 2

**Amount Per Serving**

| | |
|---|---|
| **Calories** 250 | Calories from Fat 110 |
| | **% Daily Value*** |
| **Total Fat** 12g | **18%** |
| Saturated Fat 3g | **15%** |
| *Trans* Fat 3g | |
| **Cholesterol** 30mg | **10%** |
| **Sodium** 470mg | **20%** |
| **Total Carbohydrate** 31g | **10%** |
| Dietary Fiber 0g | **0%** |
| Sugars 5g | |
| **Proteins** 5g | |
| Vitamin A | 4% |
| Vitamin C | 2% |
| Calcium | 20% |
| Iron | 4% |

* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs:

| | Calories: | 2,000 | 2,500 |
|---|---|---|---|
| Total Fat | Less than | 65g | 80g |
| Saturated Fat | Less than | 20g | 25g |
| Cholesterol | Less than | 300mg | 300mg |
| Sodium | Less than | 2,400mg | 2,400mg |
| Total Carbohydrate | | 300g | 375g |
| Dietary Fiber | | 25g | 30g |

For educational purposes only. This label does not meet the labeling requirements described in 21 CFR 101.9.

***Figure 7-1.*** FDA Nutrition Facts label black and white version (Source: U.S. Food and Drug Administration).

A uniform carbon-labeling program would raise awareness, create the standard metrics, and provide indicators of environmental health just like daily caloric intake does for nutrition. Efforts to create carbon labels begun by organizations such as the carbon trust (www.carbontrust.com), established in the UK in 2001, have not reached the levels of government policy makers as of yet to truly make an impact. Below is a mock-up of a new Carbon Facts label that mimics the iconography and graphic standards of the FDA's Nutrition Facts.:

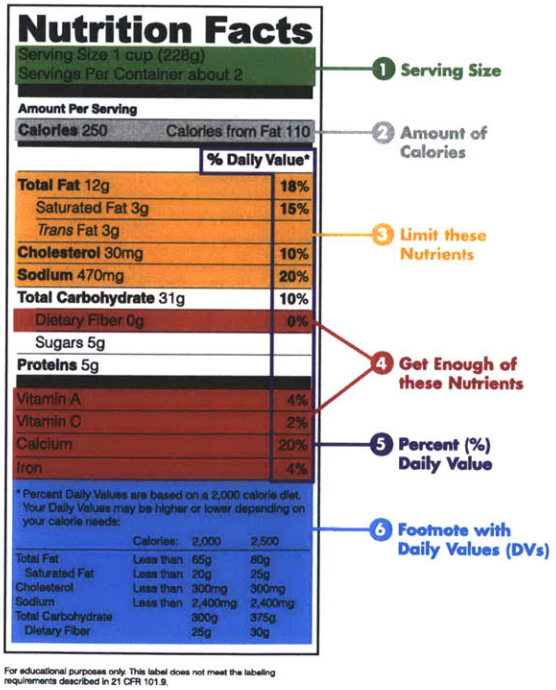



***Figure 7-2.*** FDA Nutrition Facts food label (Source: U.S. Food and Drug Administration).

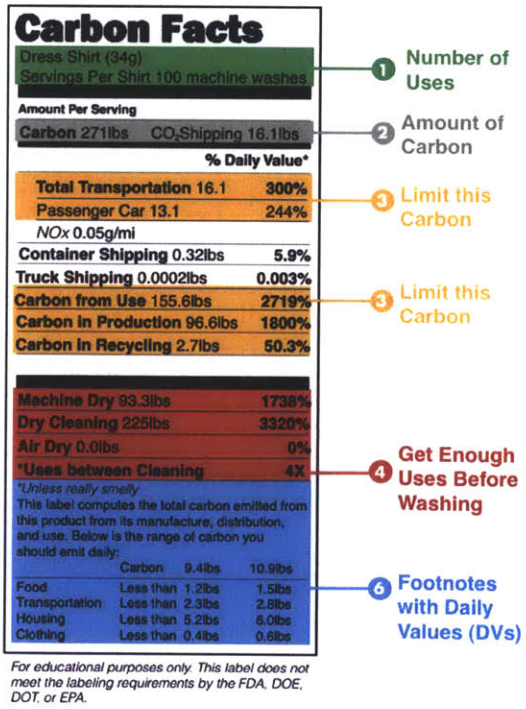
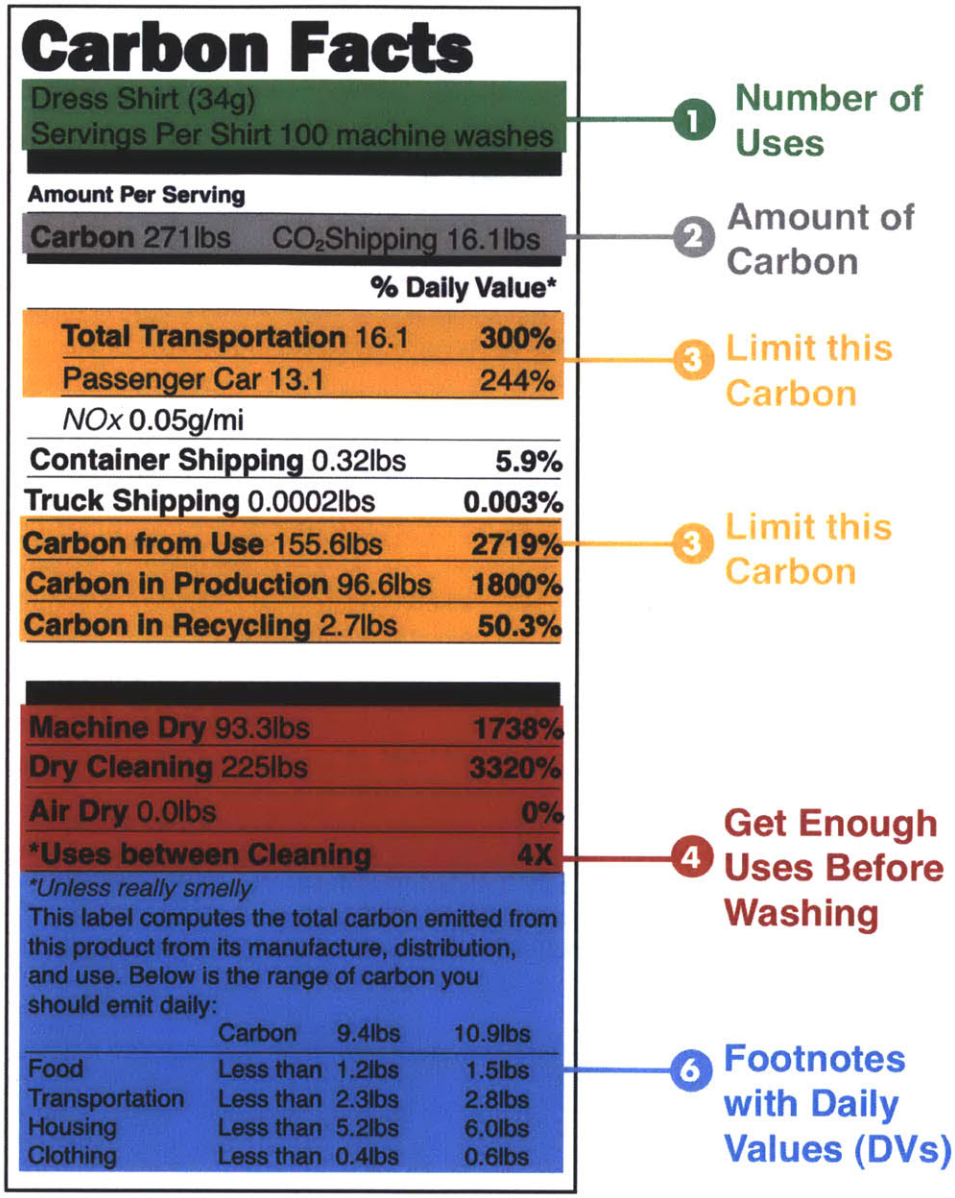



***Figure 7-3.*** Carbon Label (Mock-up).

This mock-up utilizes some of the data gathered in this study and uses the MP Offline model to express the urgency to rethink our approach toward managing the carbon problem. This label has been modified to illustrate daily carbon emissions (and how to limit it), carbon from use (i.e., washing and drying), and the estimated daily carbon directly relevant to consumers of clothing, personal transport, food, and even housing. The establishment of an ideal carbon emissions level on a global per capita basis is a complex and heavily politicized process. But this mock-up shows the power the right kind of messaging will have on major societal problems. (Note: I used artistic license throughout this mock-up, especially on daily use and emissions for categories outside of shirts). The impact of the FDA's nutritional label has had profound impact on the entire health industry and I believe this could be translated to the problem of environmental health. Below, in Figure 7-4, is a closer view of how the Carbon Label could be organized:




*For educational purposes only. This label does not meet the labeling requirements by the FDA, DOE, DOT, or EPA.*

***Figure 7-4.*** Carbon Label (close-up view).

Wardrobe-on-Demand

Making Carbon Labels was not the focus of this thesis, nor was it to create a policy or to take a passive approach, but to tackle the problem by mapping the problem, and making assertions on how to utilize the evidence uncovered. One potential active approach that manufacturers and retailers can take is the creation of a new clothing ownership model which breaks away from the burden of building a wardrobe in the traditional fashion. The burden of clothing ownership is the need to shop, stock, restock, maintain, and remove wardrobe items. Similarly, the burden of car ownership requires owners of automobiles to shop for a new vehicle (deal with the salesperson), maintain (oil changes, gasoline), remove (sell or bring to scrap yard), and restock their

automobiles. A new ownership model called Wardrobe-on-Demand (WOD) can provide the optimal wardrobe as a service in which the operator of WOD would sort, filter, and optimize what the consumer currently owns and then provide new clothing that will maximize benefit metrics determined by the end-user. For example, WOD can provide the consumer with an environmentally optimal wardrobe that provides the highest variety of clothing under the constraint of maximum utilization. In this scenario, WOD will adopt many of the guidelines listed above such as creating Customizable Clones of your best fitting existing shirts, while making suggestions for new clothing using combinatorics and color theory. Any new clothing suggested by WOD would also follow additional guidelines for smart materials and for reducing emissions in the acquisition process. The resultant wardrobe should provide all the benefits of MC principles, including best possible fit, function, and aesthetics while correctly sizing the entirety of the wardrobe to continue to reduce waste.

Based on the research in this thesis, I submit that a new model of production can provide a novel driver of environmental sustainability and *responsible consumerism.* This new model, called Smart Customization, combines the benefits of the existing models described in the Evidence-Based Guide to provide low-carbon and customizable products. These products will be underlain by advances in technology (low cost sensors, digital fabrication, persuasive interfaces, smart materials) and creative business models (pull-based marketing, local production, low-energy shipping) and architectural solutions like miniaturized retail experiences.

### 7.10 Limitations to this Study

Despite the advantages that emerge from this study on men's dress shirts and their potential applicability to other products, there remain several limitations worth noting. The first is that the dress shirt-tracking portion of this study is limited to four months of data (approximately 60 wearing days) due to time constraints and the total number of participants is limited to approximately 20. This small sample size will not provide enough data to make projections of the benefits at large volume.

This thesis can be considered as a pilot study for a much larger industrially sponsored examination of consumer use to include hundreds of participants over a one-year period (which would provide an examination of seasonal dress shirt wearing behavior) or even longer. Many of the sponsoring members of the Media Lab and MIT could be potential partners in creating a much more extensive study not only for dress shirts, but also for all types of products in the apparel and consumer electronics space.

The second limitation is that this study does not include fabric extraction and processing in the product lifecycle analysis. We assume that fabrics are similar for MC and MP shirts and that the total energy and environmental impacts are the same. The assumptions for product maintenance (washing, dry cleaning, ironing, etc.) will be similar, thus having the same effect as the fabric component. To minimize this limitation, this study does interview MC providers on the use of materials in their shirts, as well as subjects on whether or not they clean and press all their shirts in a similar fashion.

The lack of adequate manufacturing and distribution data from MP companies is another limitation. After several approaches to major manufacturers, we soon realized it would require the combination of additional networking time and socialization of the premise of the study which would be out of the scope of our project duration. To minimize this limitation, we make basic assumptions about the production and distribution annotated throughout the study.

This study did not exam extensively the comparative carbon emissions of the physical

infrastructure devoted to distribution and retail. Such a study would examine the total carbon emissions due to the embodied and operational energy used in all the buildings utilized in the manufacture and distribution of MP and MC products. This would include factory production plants, distribution centers, and retail locations, as well as energy consumed by employee travel. The results of this study could then be compared with this thesis and integrated to form a more complete picture of the total product lifecycle. Such an examination of this limitation warrants another dissertation that would probably be best done in collaboration with MIT Engineering Systems Division (EDS) or other groups concerned with total product lifecycle.

The final limitation is that this study only accounts for two approaches to MC of dress shirts. Blank Label is a online made-to-measure MC shirt manufacturer, whereas 9Tailors and Dillon Road are classified as Custom Tailors (CT) that provide a style consultant that makes office visits or sets up appointments at their local retail location. This study also does not include MC shirts provided by big brands like Nordstroms, Brooks Brothers, or others, which often embedded custom services in existing retail locations.

### 7.11 Questions and Future Studies

This section couples questions with potential future research studies that could be examined based on the theoretical and methodological frameworks established in this thesis.

*Question: To what other case studies in consumer products would this methodology be applicable?*

Custom Jeans and Bras

Prior to the selection of dress shirts as the case study for this thesis, a number of apparel products were considered including women's jeans and bras. Both products can be highly customized and fit is even more important (especially with bras) than with men's dress shirts. The methods developed in this thesis could be adapted to examine the environmental benefits of other products to see if similar trends would provide extendibility and scalability of the concepts developed in this thesis. The Boston-based custom bra manufacturer, Zyrra, who produced over 10,000 custom bras in 2011, is a good candidate for consideration, and would make data available for the study.

*Question: Can longitudinal data be utilized in the current study or in future studies?*

Longitudinal Study with Social Networks

The early phases of this thesis explored the possibility of utilizing longitudinal data such as calendar information from each participant in order to verify special events (such as a board meeting or presentation) with shirt wearing behavior. The lack of time and concerns over privacy of information prevented us from executing this aspect of the study. In future studies, longitudinal data from calendars, daily weather patterns, and social networks like Facebook could be utilized to examine the seemingly external factors in consumer behavior and product use. Such a study can also further examine the untapped data captured in this study, including the application of pattern recognition techniques to shirt data (style, size, color, fabric, component styles, etc.).

Question: Can these methods scale to more complex products?

Application to More Complex Products

A study of more complex products such as consumer electronics, furniture, automobiles, and homes, is a logical next step in this research. The challenge would be to find similar products that are standard and customizable with manufacturers that are willing to be transparent with their data. Like the study of women's jeans and bras, this study would test the limits of the methods developed in this study as well as bring new levels of complexity into consideration.

*Question: Can this research be expanded to an entire wardrobe?*

Apparel Genome and Smart Closet

Another project to consider for future study would be the creation of a "Smart Closet" which captures data about everyday apparel decisions within the context of the home. Utilizing the RFID technologies developed in this study, the Smart Closet project could embed tags in all the articles of clothing belonging to study participants including shoes, pants, jackets, shirts and possibly jewelry and intimates. Data analysis could provide a picture of how decisions are made in finely-grained detail. We could discover which articles of clothing are hierarchically dominant and dictate the use of others (e.g., shirts determining which pants to wear or visa versa?). The collection of this data could be synthesized into an Apparel Genome that is unique to every individual. The solution space generated by the apparel genome will be small for some individuals, and perhaps large for others depending on the wardrobe, taste, and the user's vocation and personality. Retailers could utilize this notion for making suggestions for new apparel that would complement and expand each user's solution space. The implications for right-sizing and waste reduction would also be made apparent with the construction of algorithms that approximate the Apparel Genome.

*Question: Are there fundamental principles of design that provide inherent environmental benefit?*

Environmental Value of Timeless Design

An examination of on the concept of timeless design would have great impact on the understanding the trade-offs between the extra time, energy, cost, and effort to create designs that evoke timelessness vs. designs that are kitsch, disposable, low cost, and fashionable. For example, a Rolex watch which costs thousands of dollars that could be worn for generations, maintained and repaired may require much less material and energy to manufacture, distribute, and use than the equivalent 100 watches that cost $20 each if we examine the complete product lifecycle and ecosystem. A list of timeless designs could be created with their short-lived and fleeting counterparts to be considered as case studies. The results of the study would provide evidence-based guidelines for the design of timeless products.

*Question: Are there even bigger questions that we have not even asked?*

Customizable Cities

Today's cities are sets of systems that interact with each other in suboptimal ways. For example, our public transit networks do not cooperate with our private vehicle infrastructure network. Often they compete and create inefficiencies for the entire system. Another example is our energy networks, which are based on centralized generation and distribution, and yet the communication and feedback is minimal between users and manufacturers of energy. The inability to customize our cities at every level from large and complex energy and transportation networks to appliances that could customize their ideal use time based on real-time feedback systems has an impact on our ability to be economically and environmentally sustainable. It also stifles and impedes innovation happening because cities are typically made from standard components that are sub-optimally customized. The automobiles that we drive are more efficient when driving at higher

speeds, but we live in cities where the speeds are low, i.e., Shanghai, where the 9mph is the average speed (Mitchell et al. 2010). The next big question is can we create cities that are fully customizable at every level of urban life, while allowing citizens to personalize their own experiences?

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**Interviews and Conversations**

Conversation with Alex (Sandy) Pentland on the number of purchases consumers make per trip based on the analysis of credit card data (2012).

Conversation with Brennan Mulligan, co-founder of Timbuk2, at MCPC 2011, on the cosmetic customization of luggage (2011).

Bi, Fan (2012), founder Blank Label, Interview.

Shih, Samantha (2012), Founder 9Tailors, Interview.

# Appendix A

This appendix includes the following interviews, data collected from surveys, and additional visualizations not included in Chapters 1-7:

Environmental Impact Analysis of MP and MC (Appendix A)
This section provides flow diagrams for the manufacturing and distribution sequences for MP Offline, MP Online, MM, and CT models.

Exit Interviews with MC shirt retailers (Appendix B)
Interviews with Fan Bi, Chief Shirt of Blank Label (MM), and Samatha Shih, CEO of 9Tailors, LLC provide answers to an end-of-study interview on their retailing business.

Exit Interviews from Study Participants (Appendix B)
All participants were interviewed at the end of the study to verify new their new MC and MP shirts as well as their shirt wearing behavior and overall thoughts on the study methodology.

Quantitative Survey Results (Appendix C)
Results gathered by SurveyMonkey from the 276 respondents that participated in Quantitative Survey (Chapter 4) are listed in this appendix.

Experiment I: Acquisition Survey Results (Appendix D)
Results gathered by SurveyMoney for the acquisition phase of the study are listed in this appendix including the 10 respondents for the MM survey, 13 respondents for the CT survey, and 21 respondents for the MP survey. Also in this section included answers from the "Optional Questions" section of this survey. There are more respondents for the Experiment I survey, than participants as several dropped out during this stage of the study.

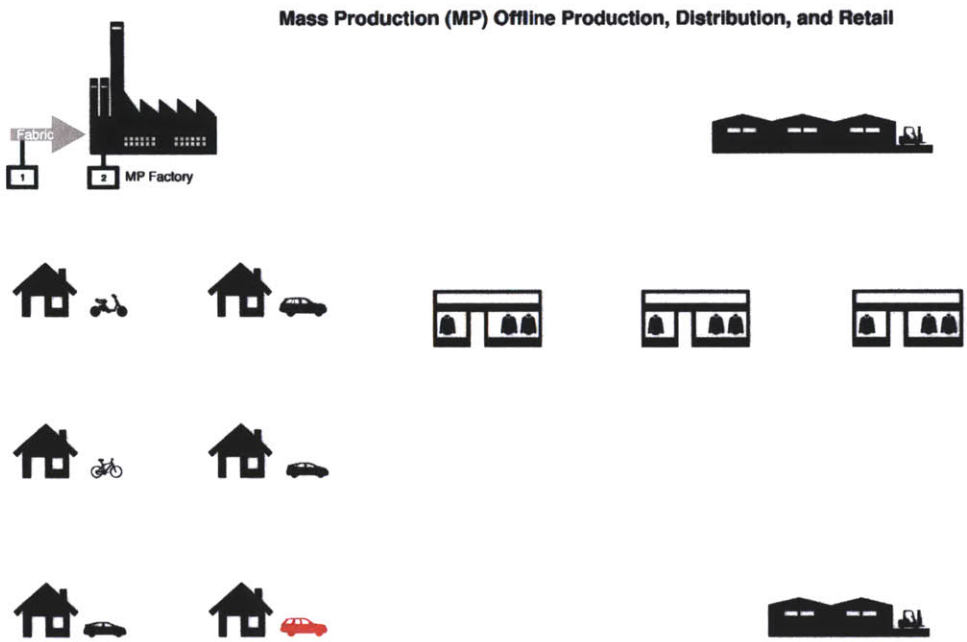
**Environmental Impact Analysis of MP and MC**

This section provides a sequence of flow diagrams for the manufacturing and distribution for MP Offline, MP Online, MM (Blank Label), CT (9Tailors with alternative), and CT (Dillon Road with alternative) models.

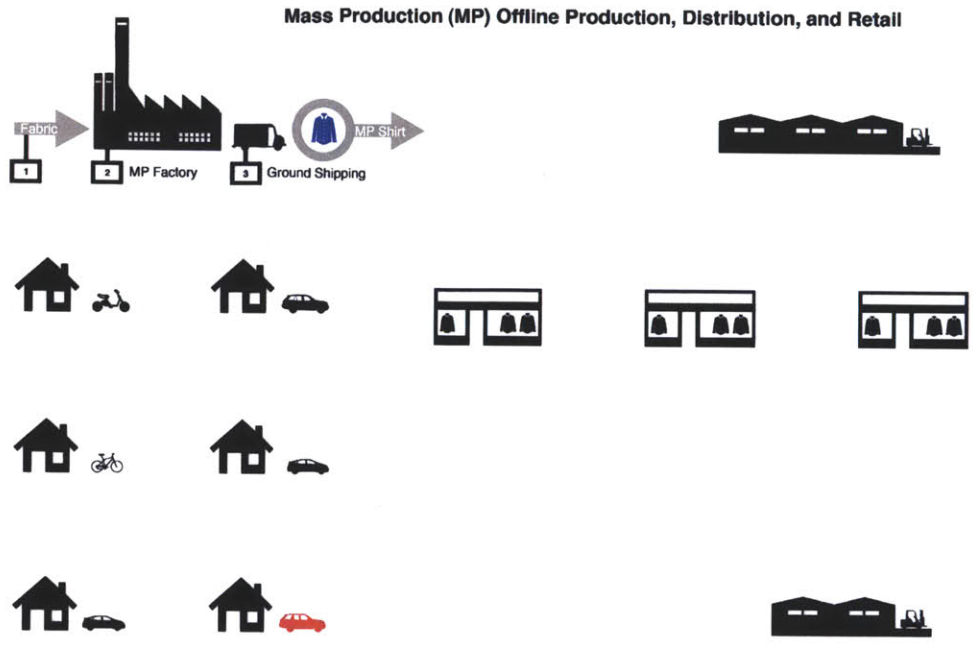
MP Offline Manufacturing and Distribution Sequence


***Step 0.*** MP Offline

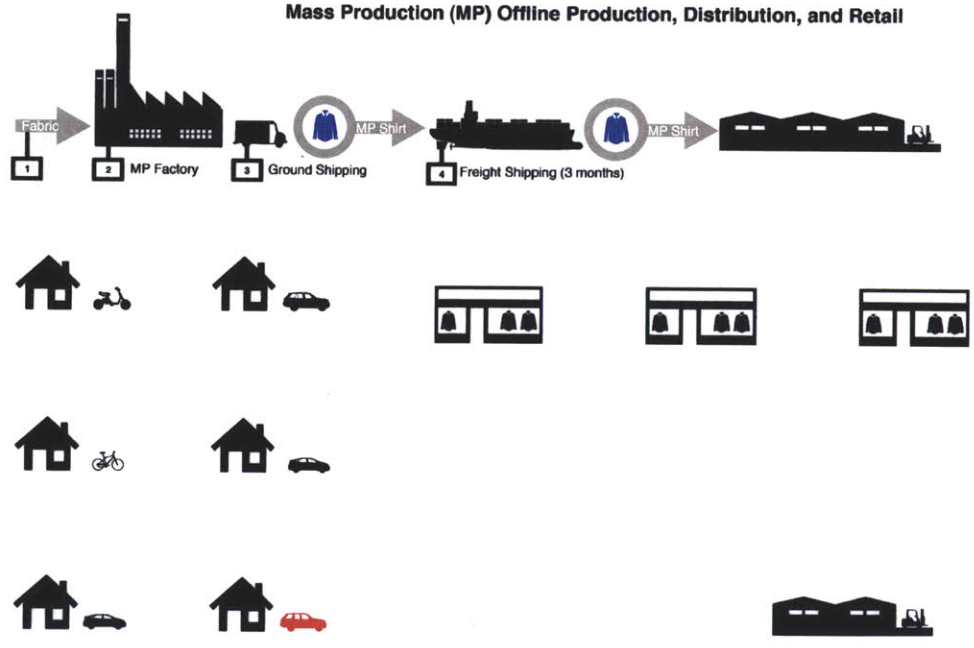

***Step 1.*** MP Offline



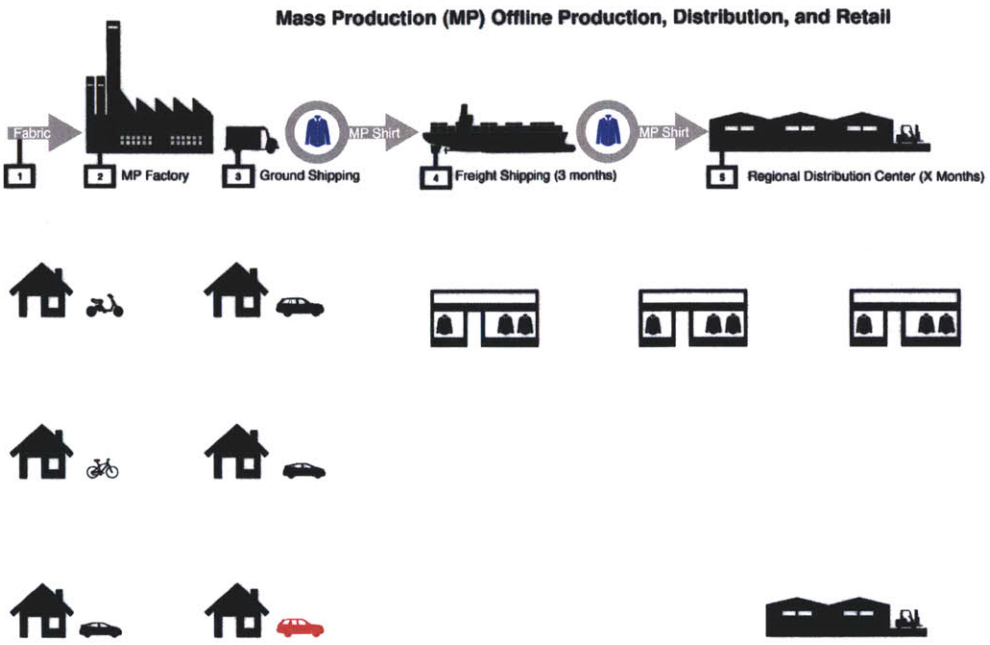

***Step 2.*** MP Offline



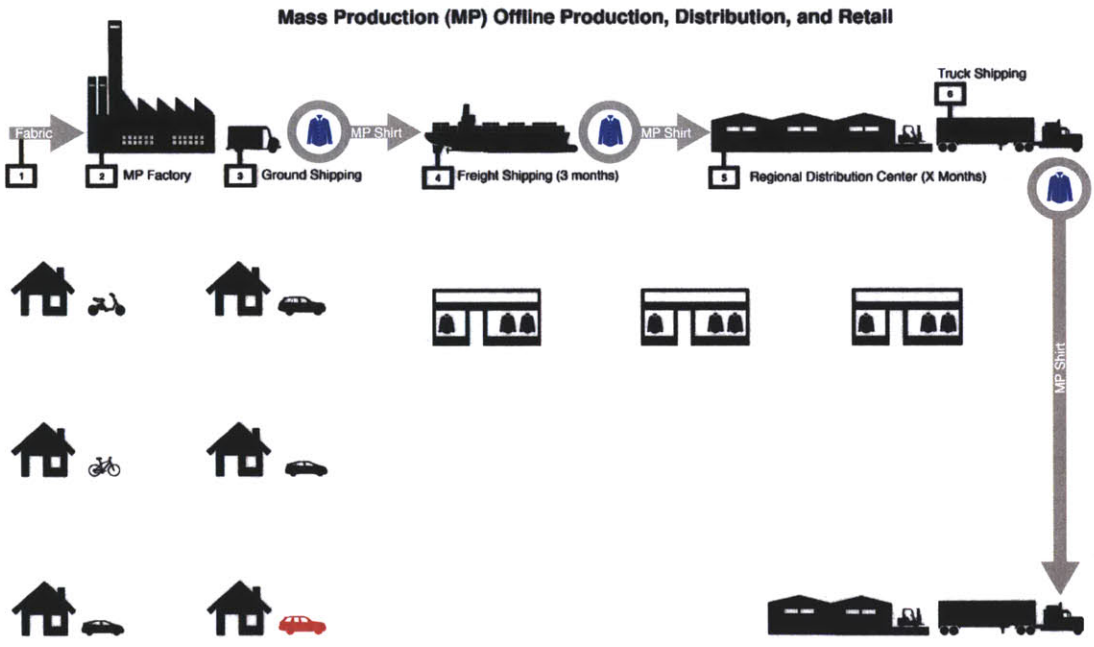

***Step 3.*** MP Offline



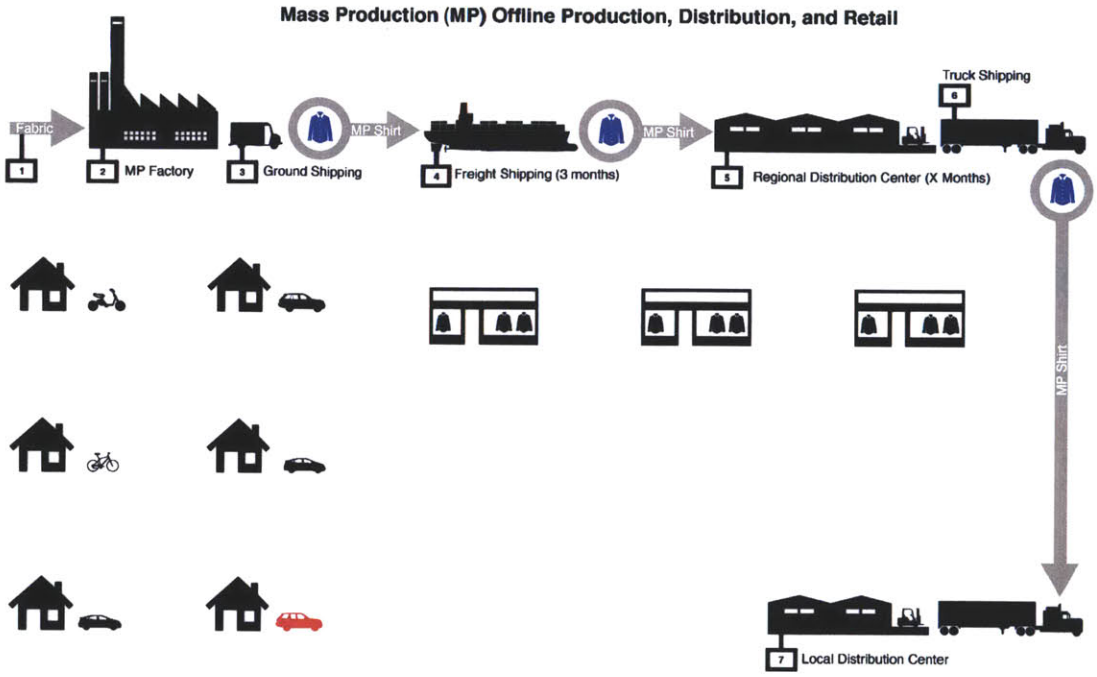

***Step 4.*** MP Offline



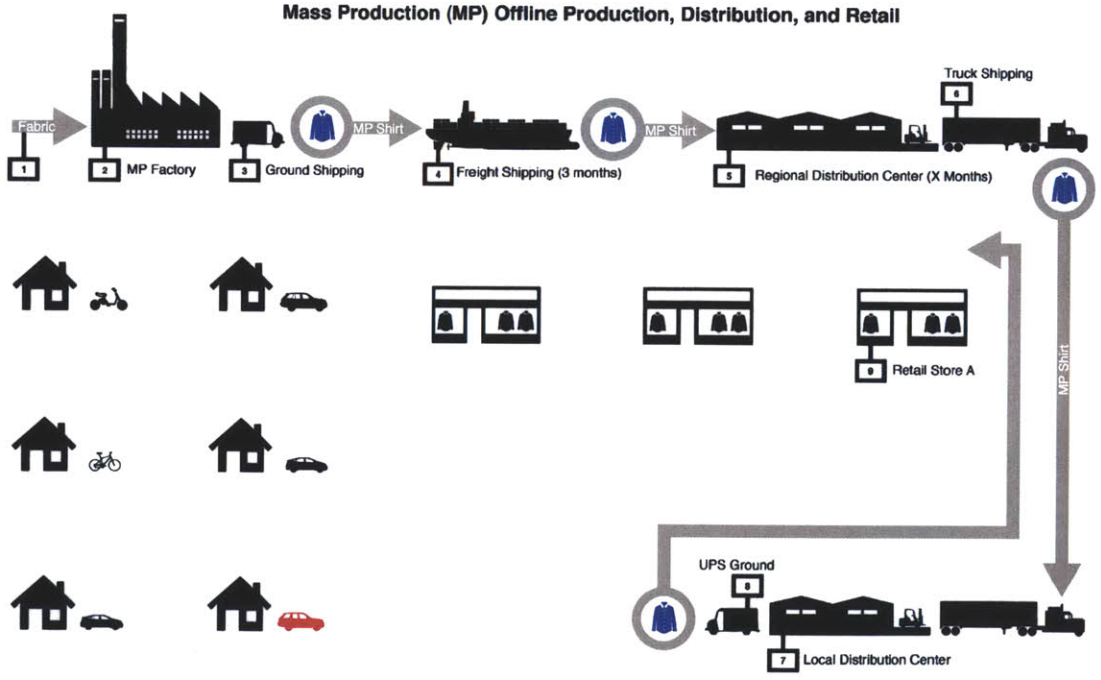

***Step 5.*** MP Offline



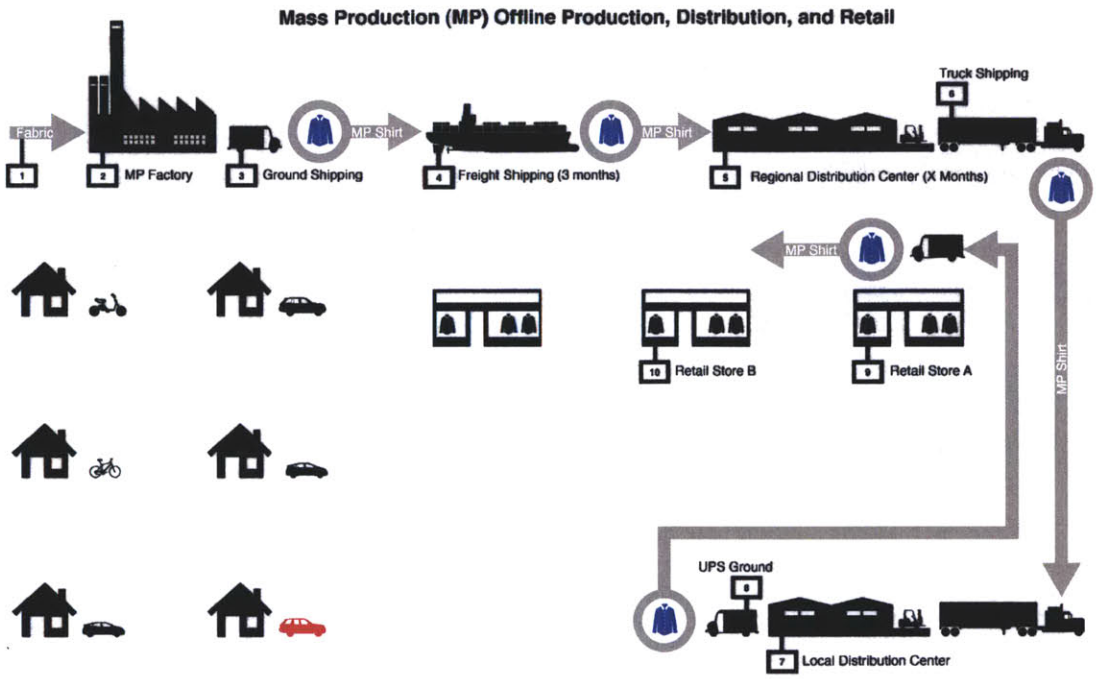

***Step 6.*** MP Offline



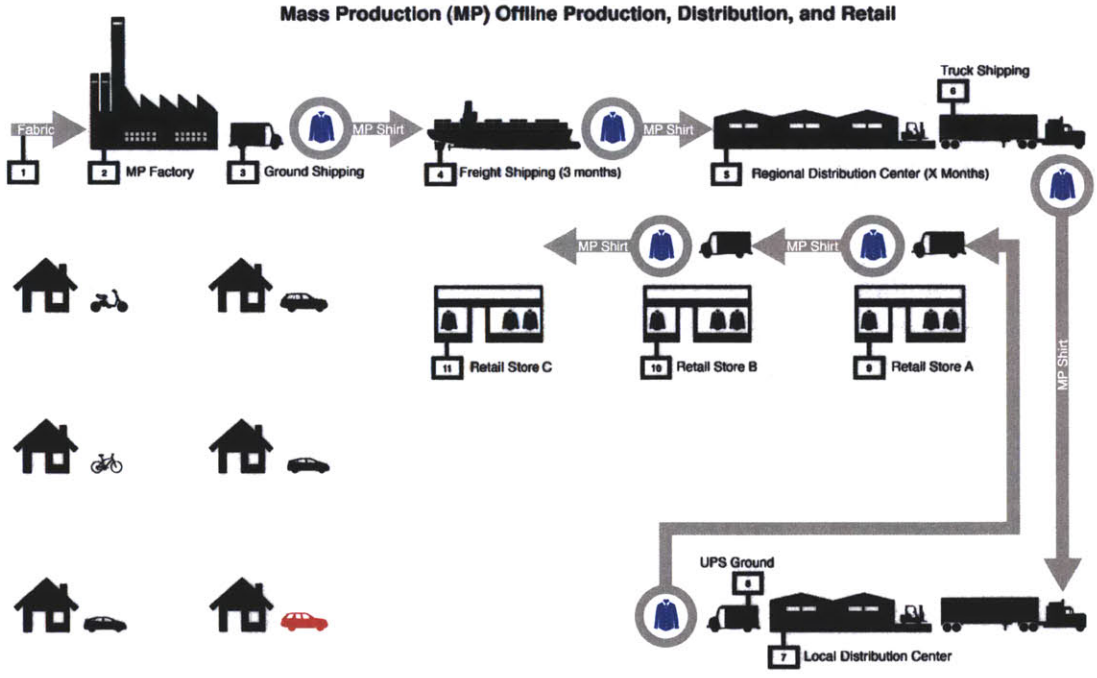

***Step 7.*** MP Offline



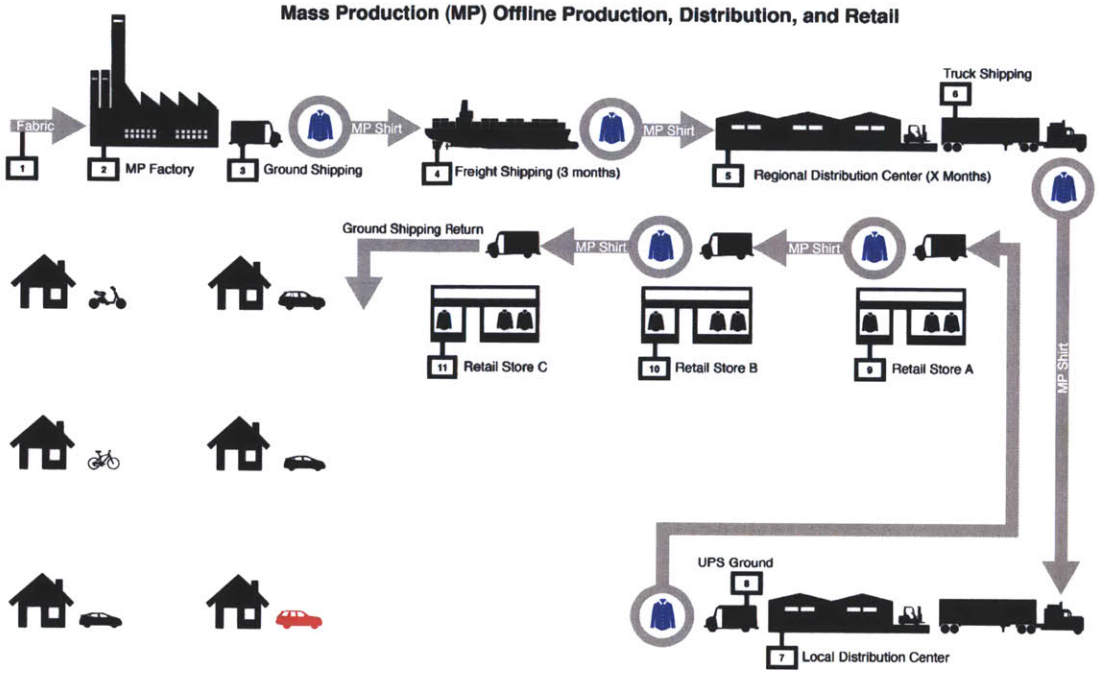

***Step 8 & 9.*** MP Offline



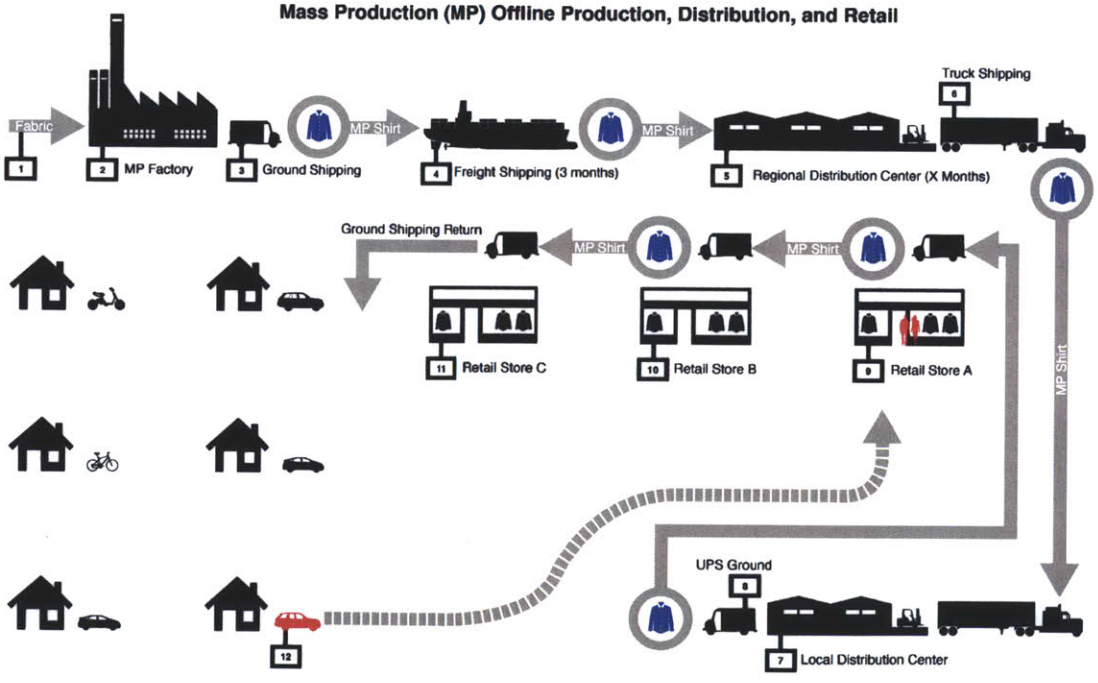

***Step 9 & 10.*** MP Offline



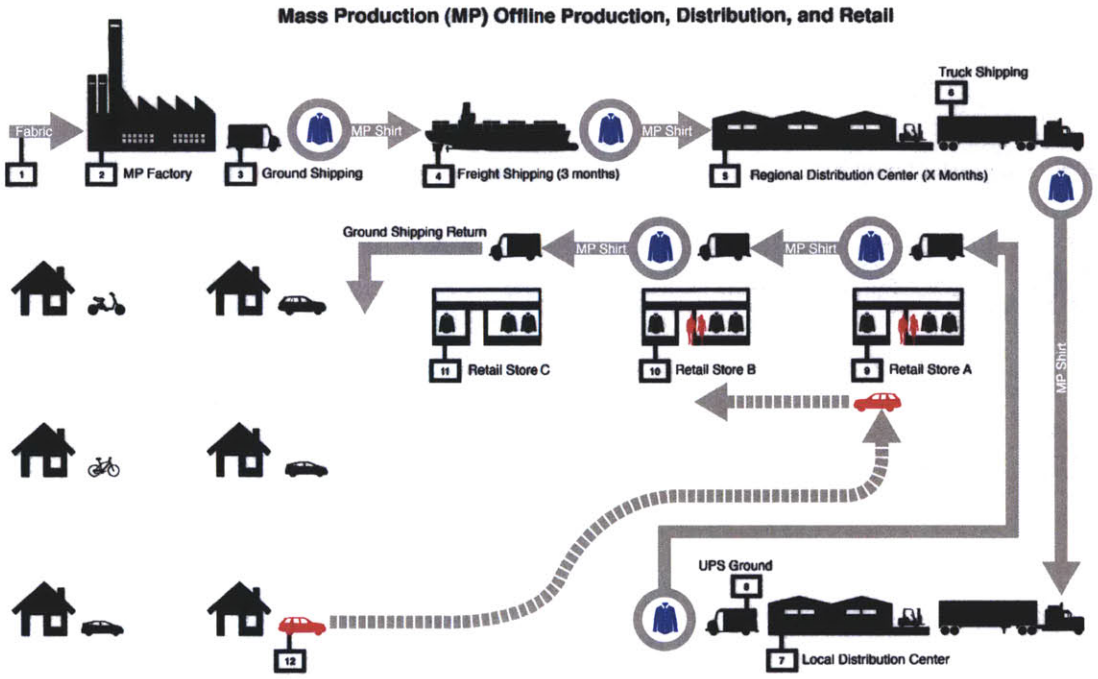

***Step 10 & 11.*** MP Offline




***Step 11.*** MP Offline




***Step 12.*** MP Offline

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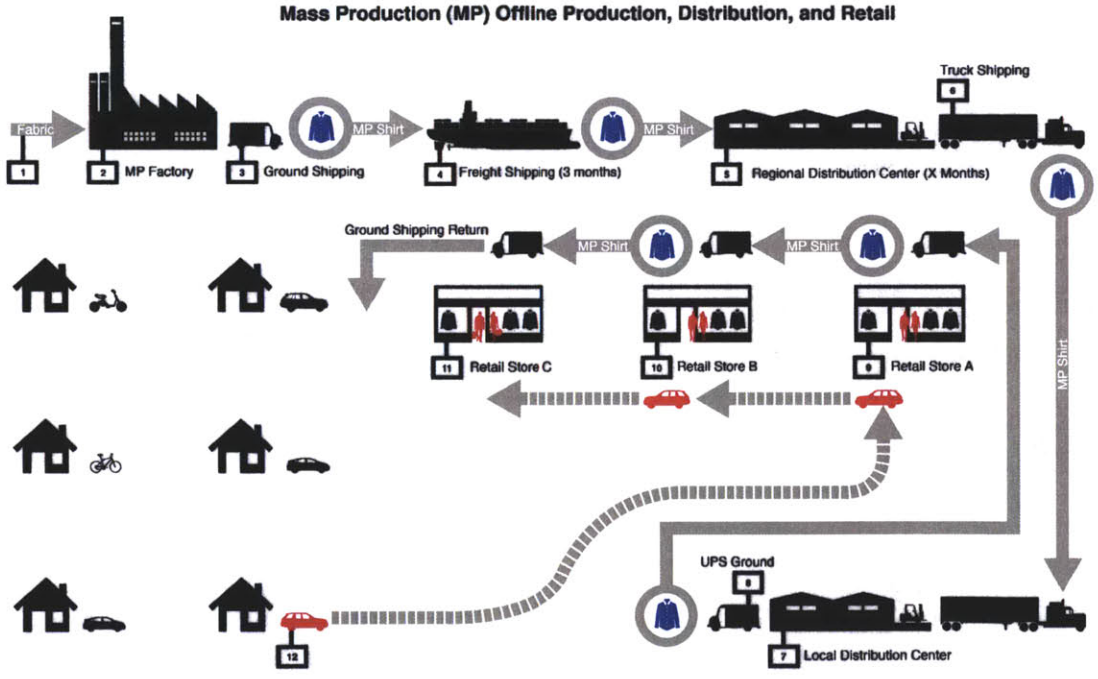


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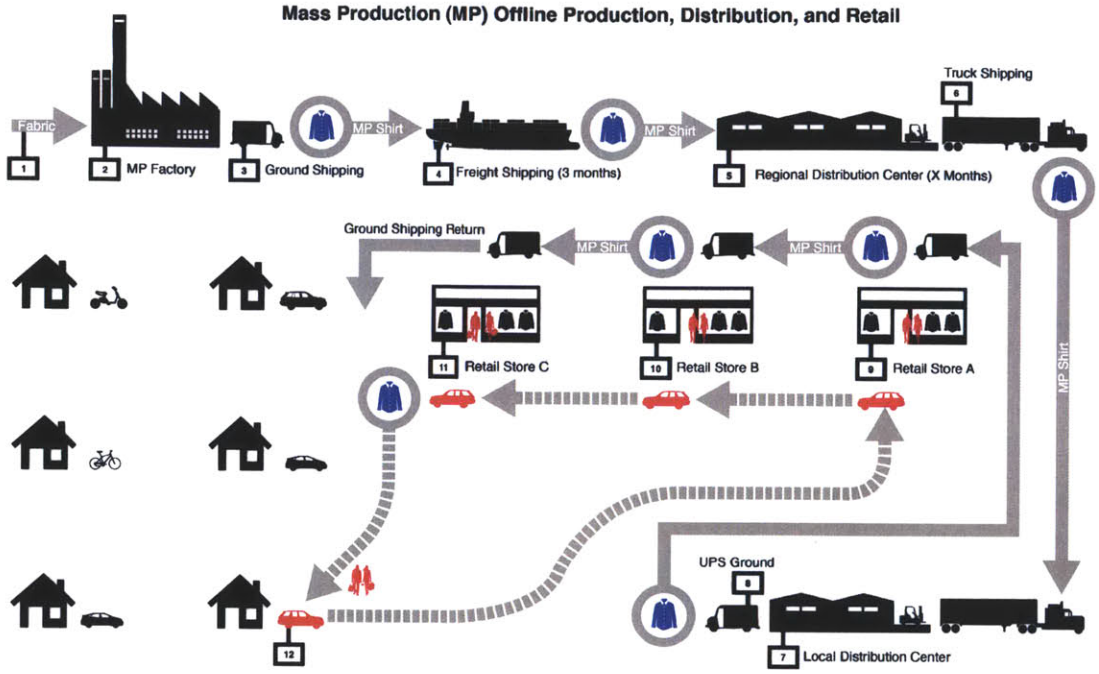


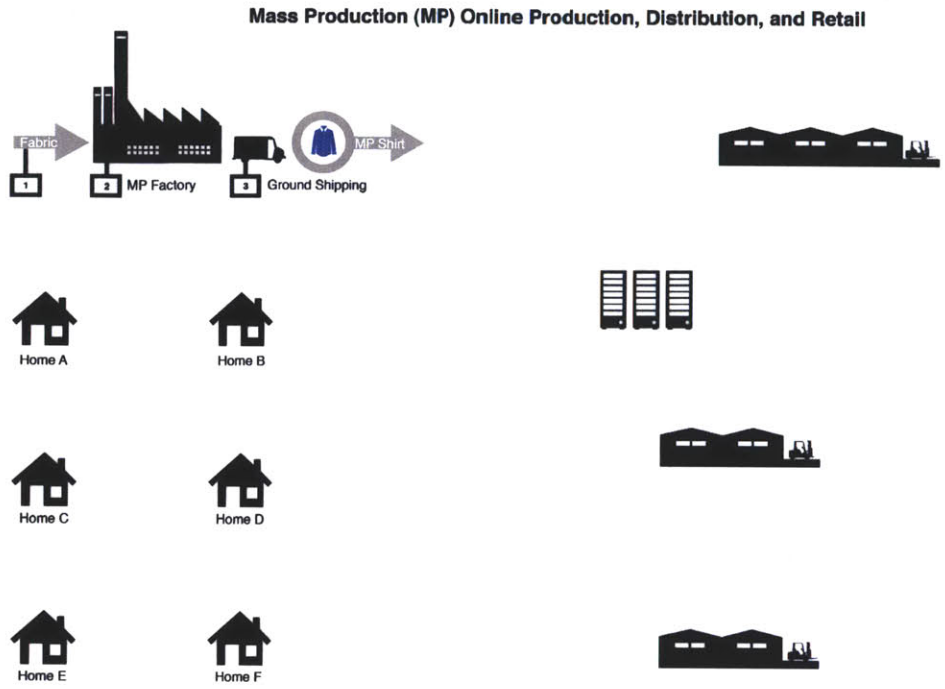

***Step 15.*** MP Offline

## MP Online Manufacturing and Distribution Sequence

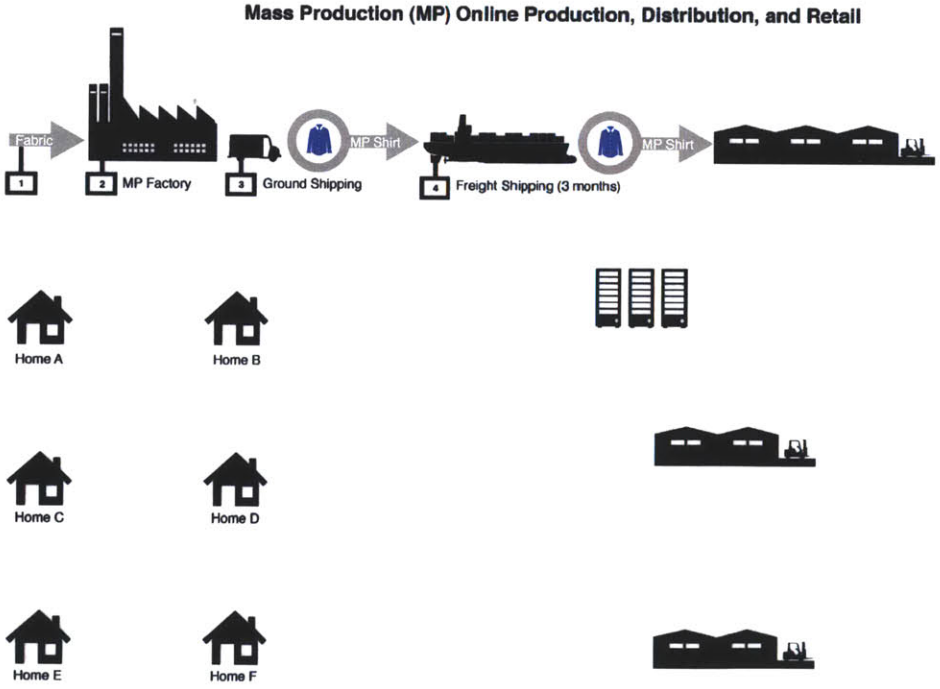

***Step 0.*** MP Online


***Step 1.*** MP Online

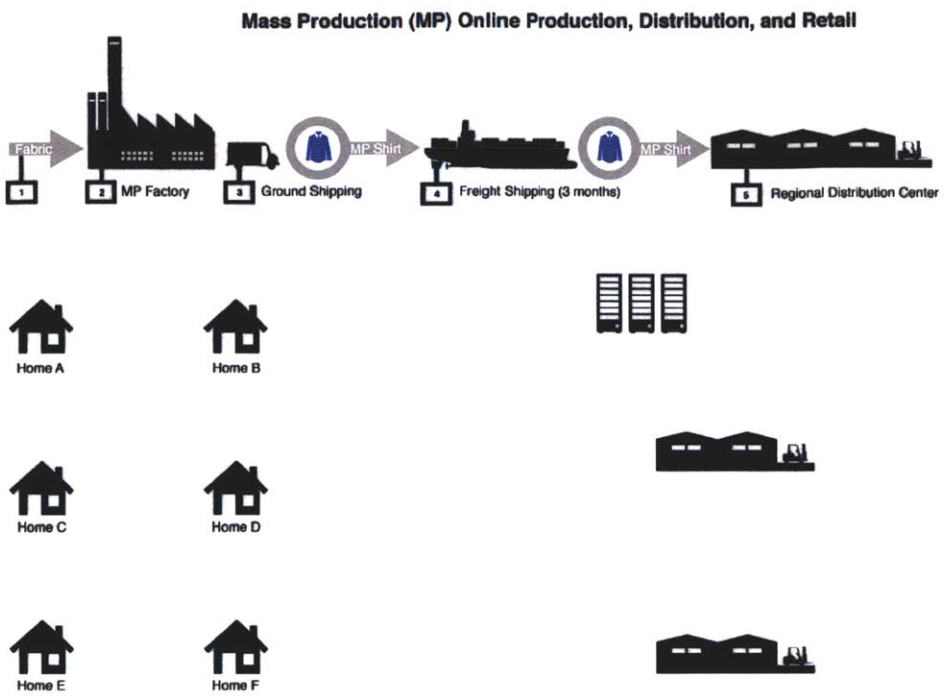

***Step 2.*** MP Online




***Step 3.*** MP Online




***Step 4.*** MP Online

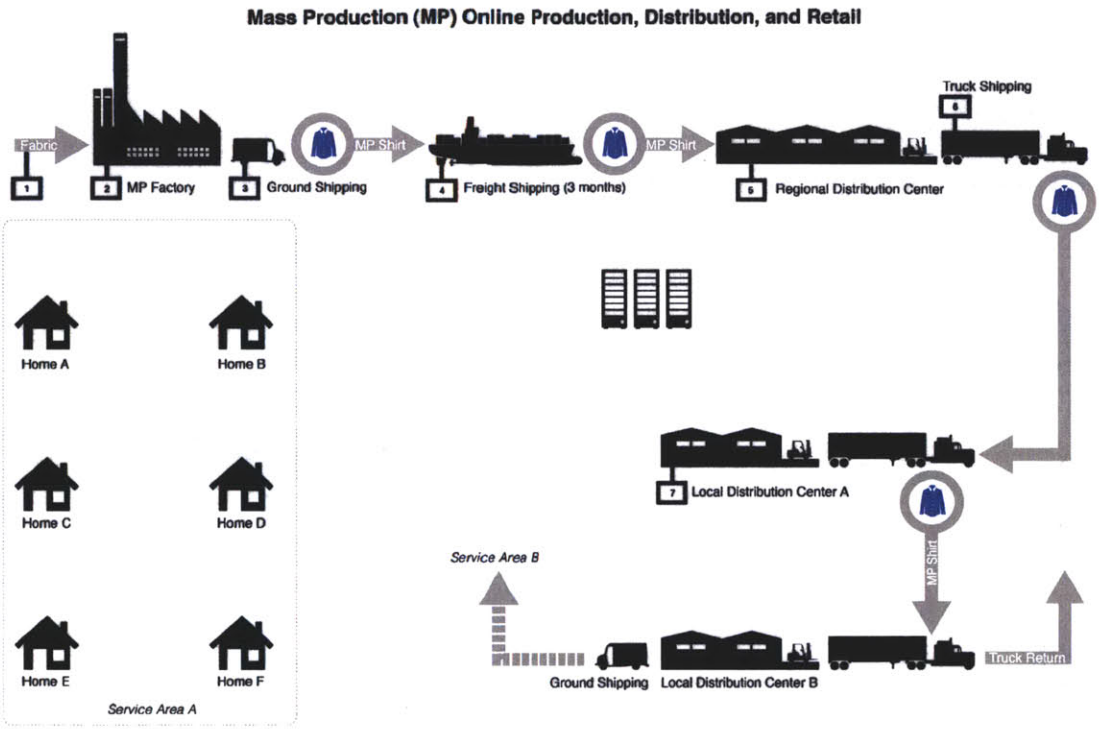



***Step 5.*** MP Online

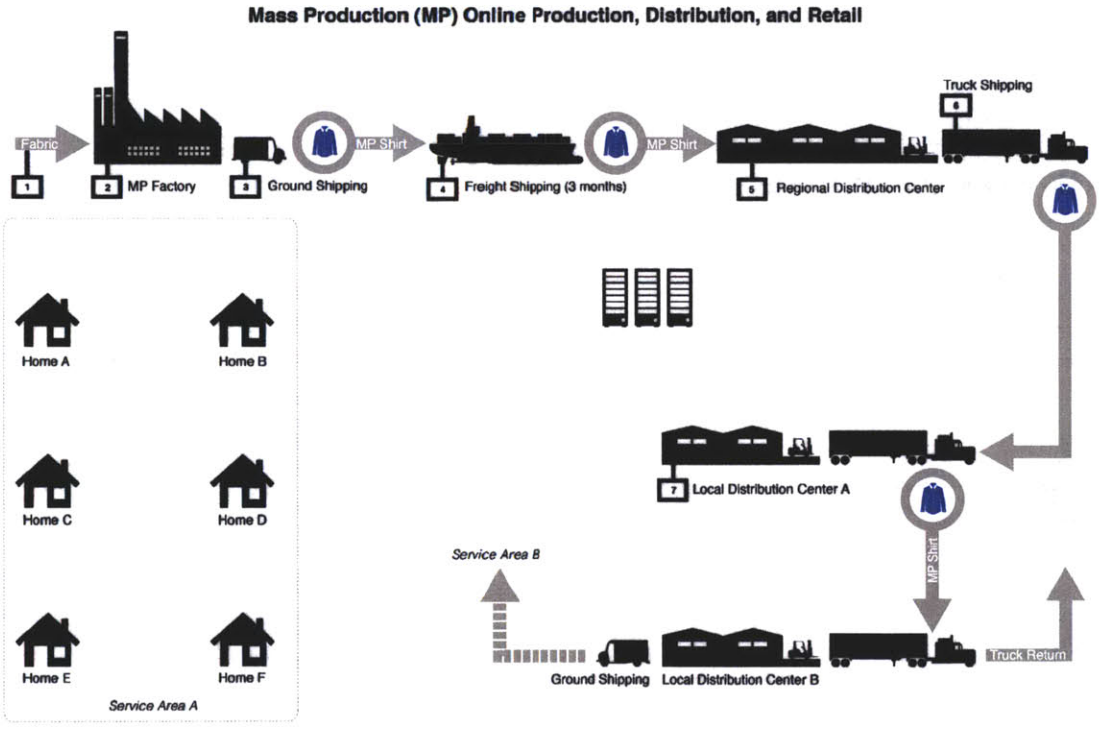

***Step 6.*** MP Online


***Step 7.*** MP Online

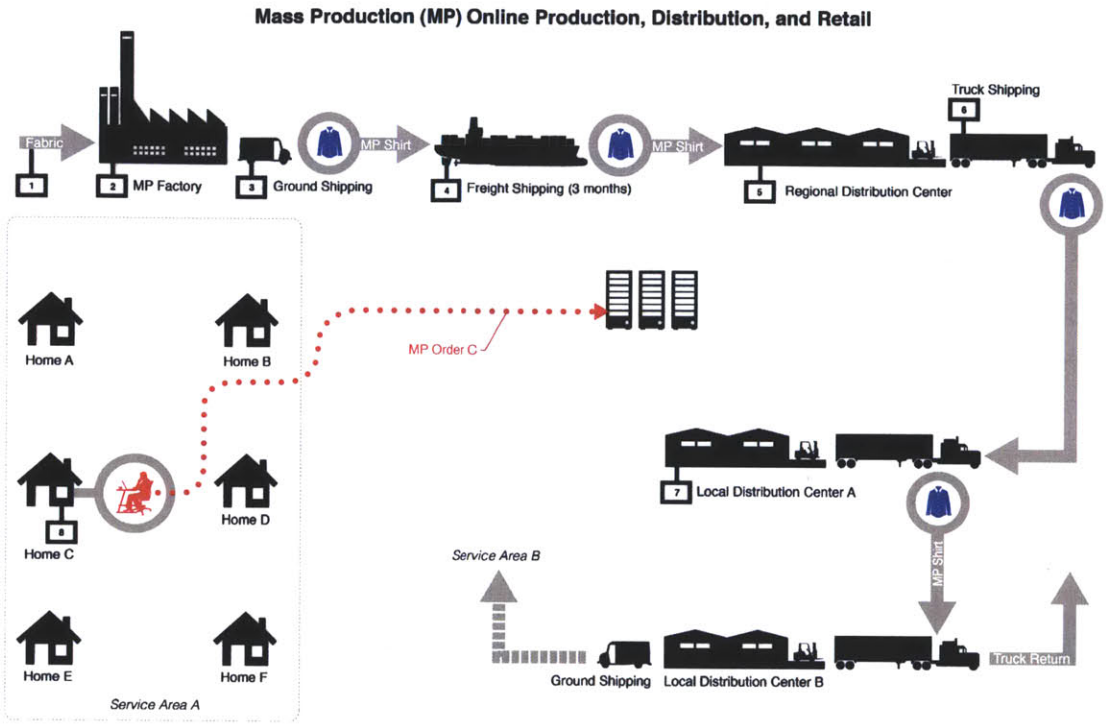

***Step 8.*** MP Online



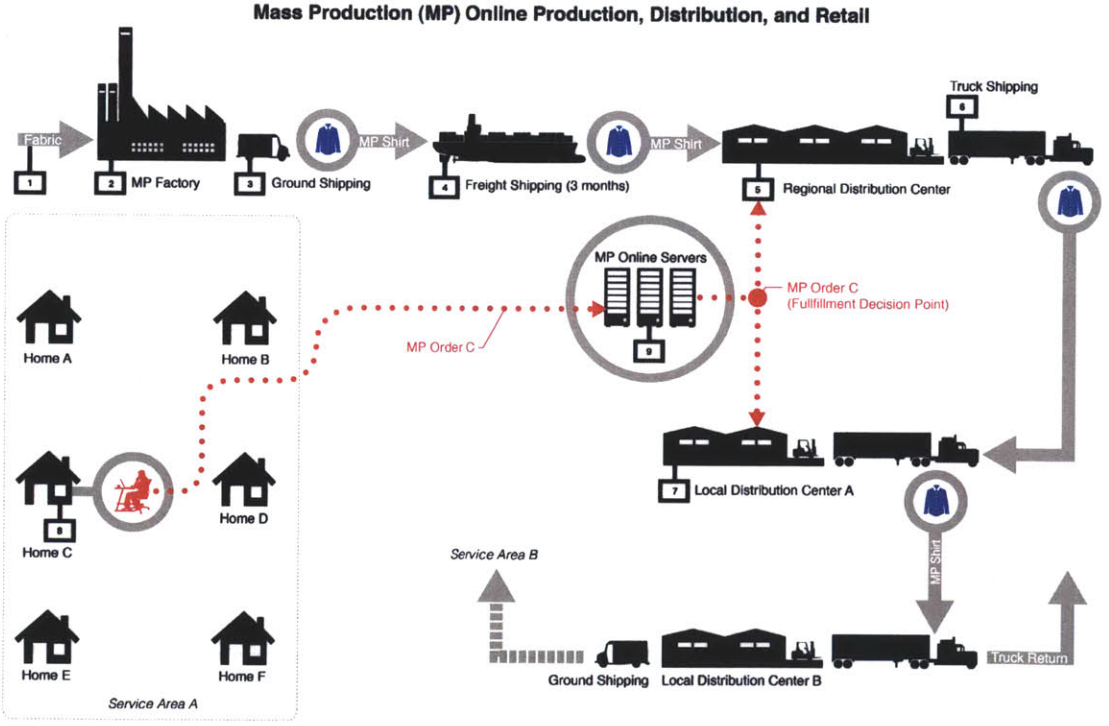

***Step 9.*** MP Online



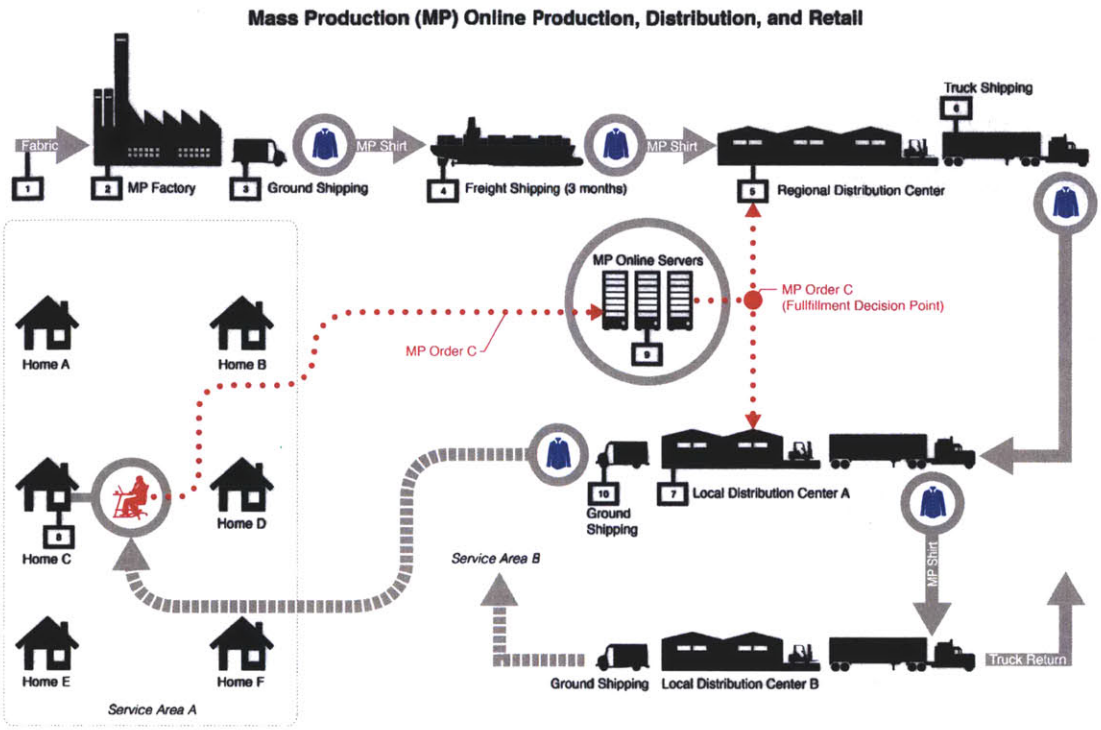

***Step 10.*** MP Online



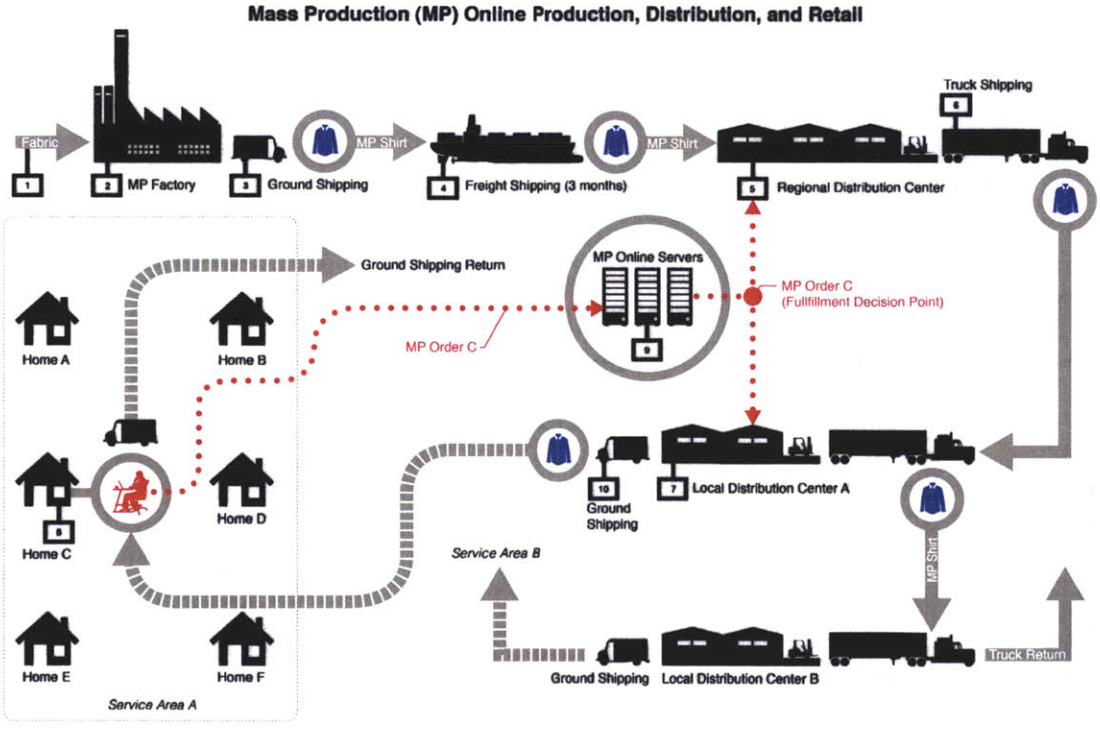

***Step 11.*** MP Online




***Step 12.*** MP Online




***Step 13.*** MP Online




***Step 14.*** MP Online

MN (Blank Label) Manufacturing and Distribution Sequence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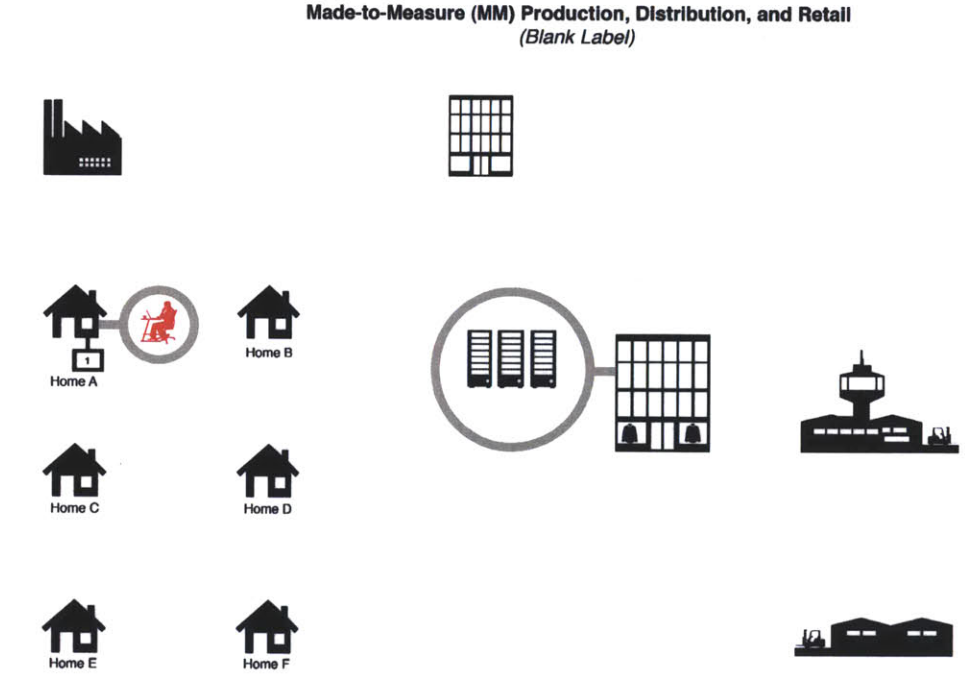
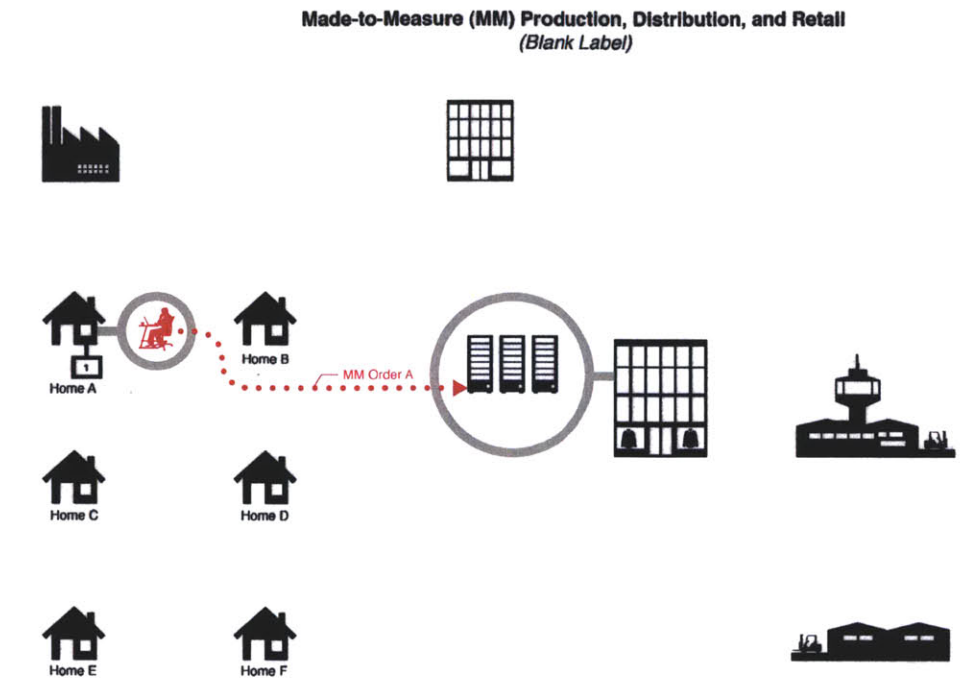
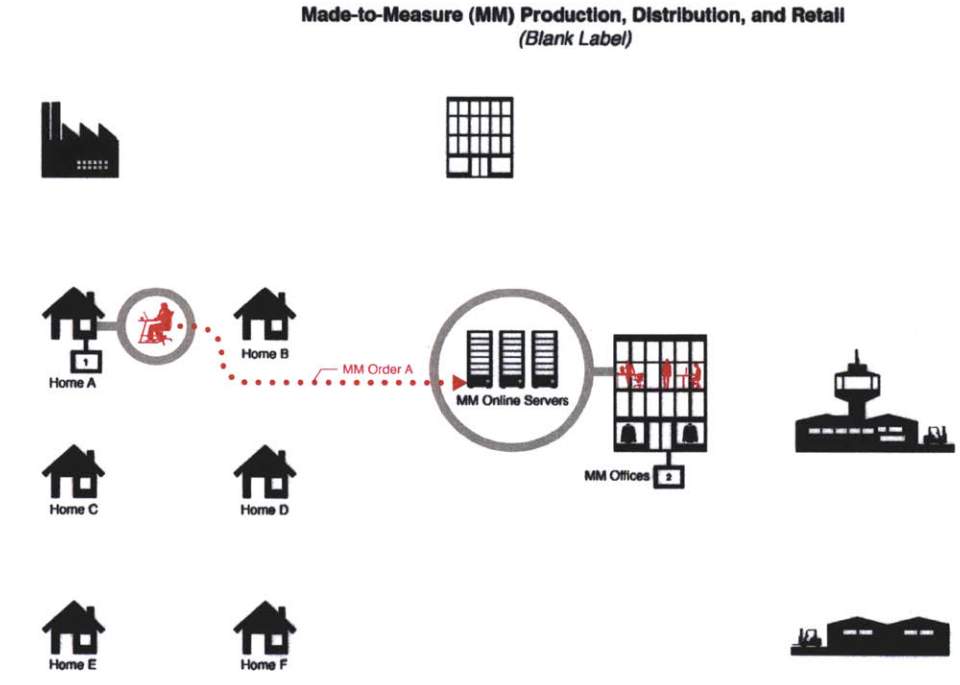


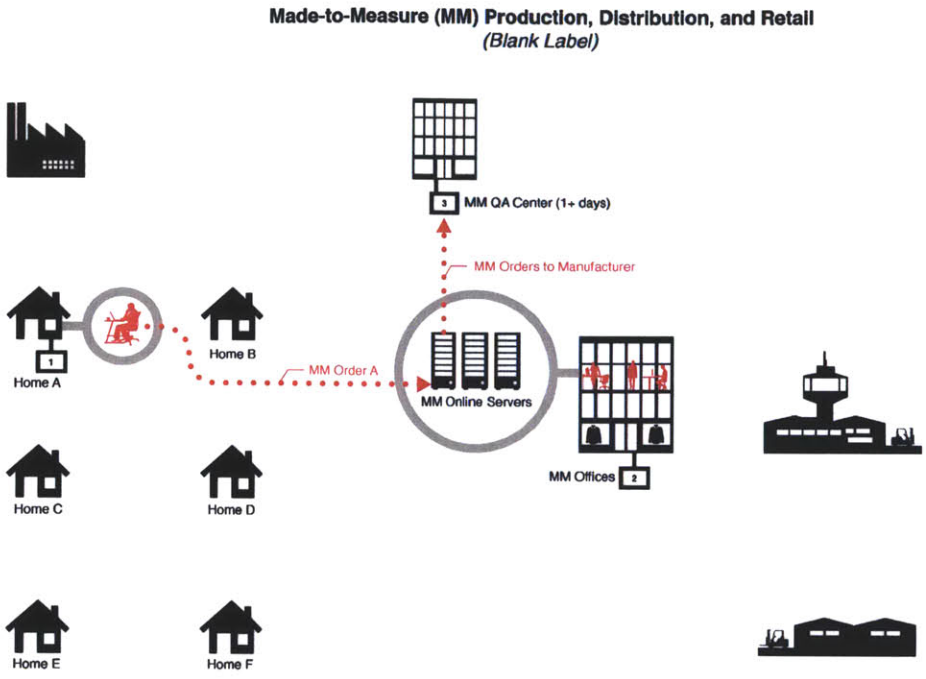

***Step 1.*** MM (Blank Label)



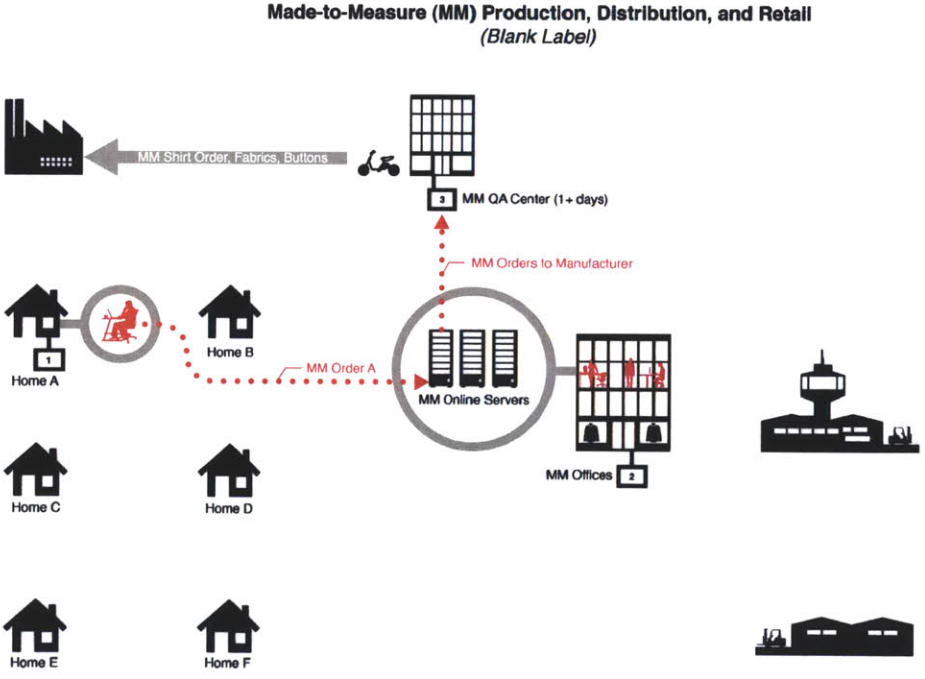

***Step 2.*** MM (Blank Label)



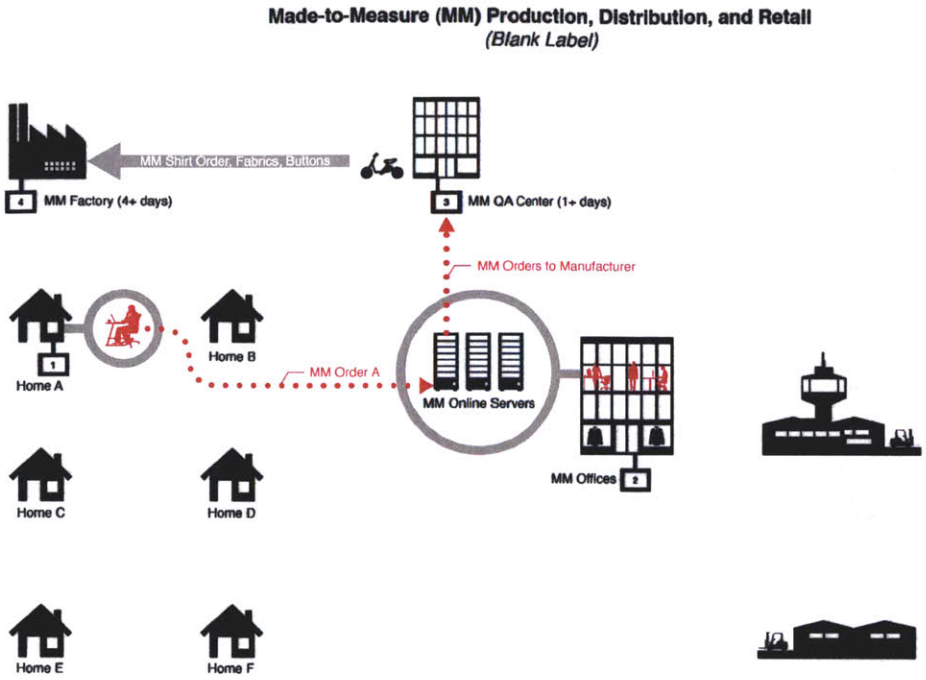

***Step 3.*** MM (Blank Label)



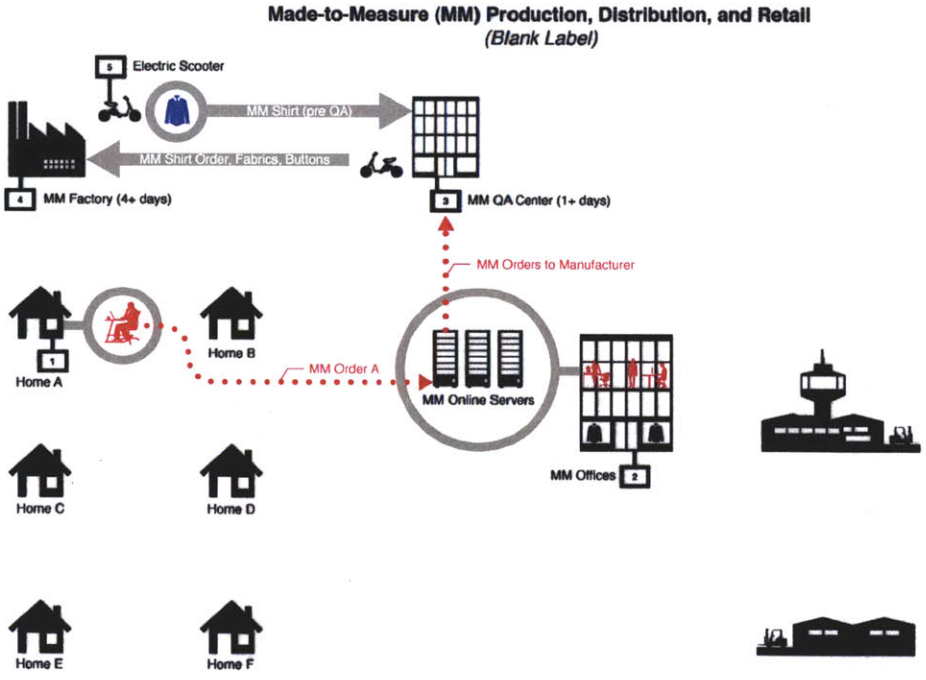

***Step 4.*** MM (Blank Label)




***Step 5.*** MM (Blank Label)




***Step 6.*** MM (Blank Label)

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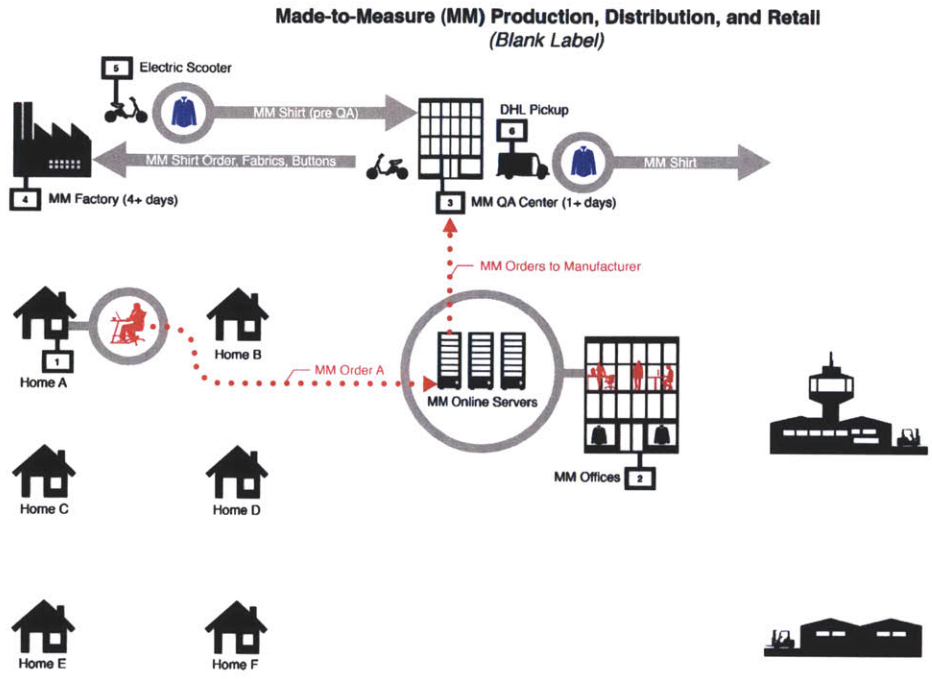
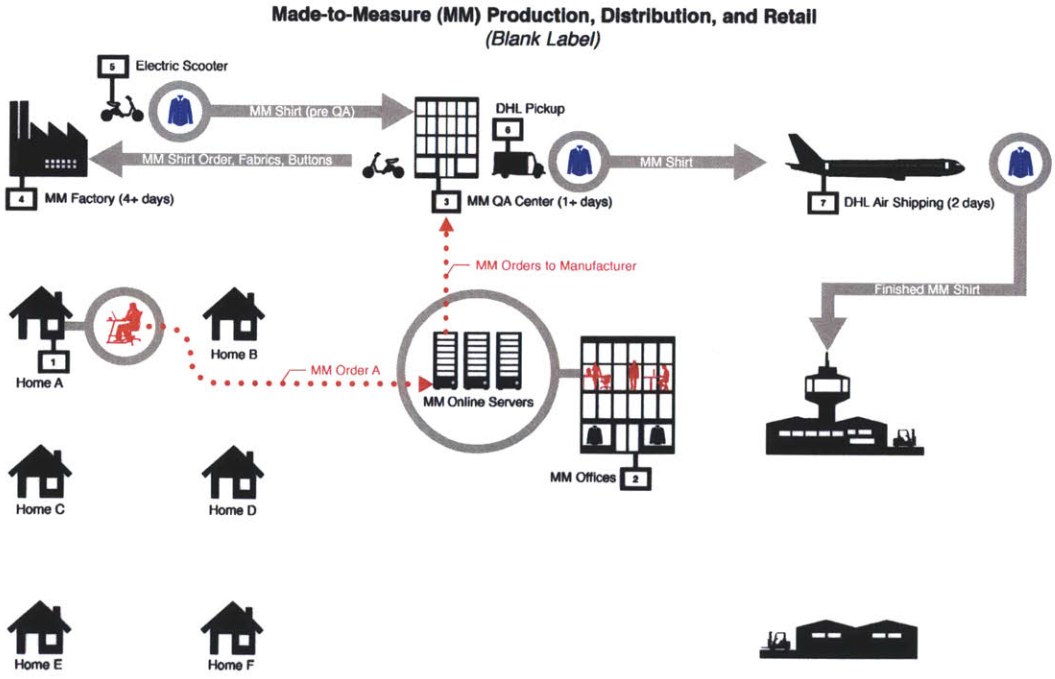
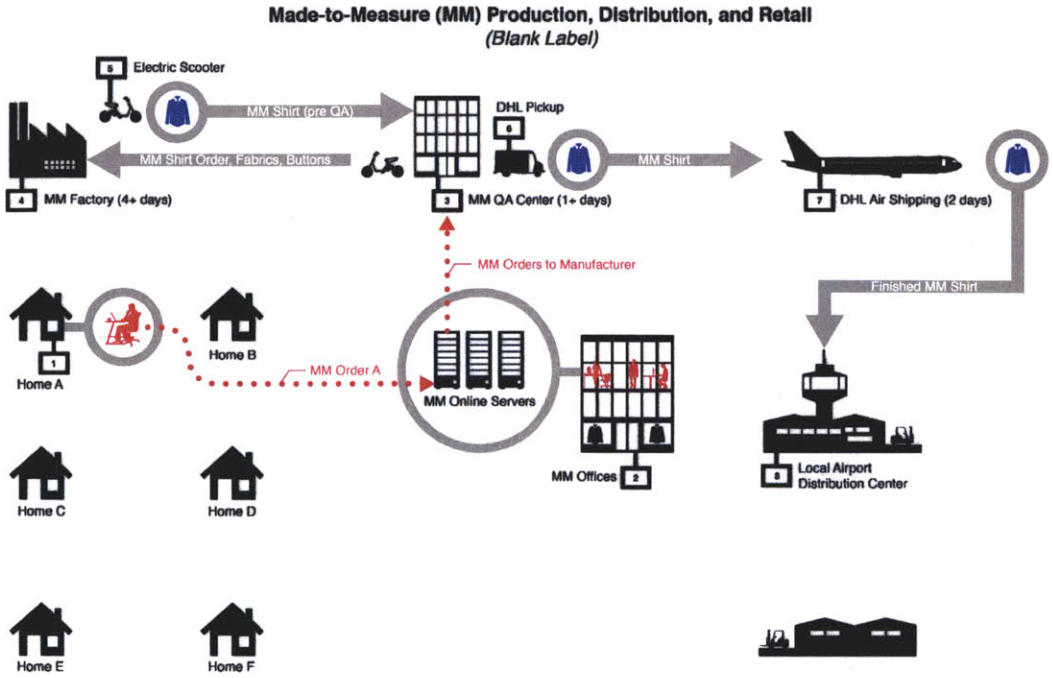


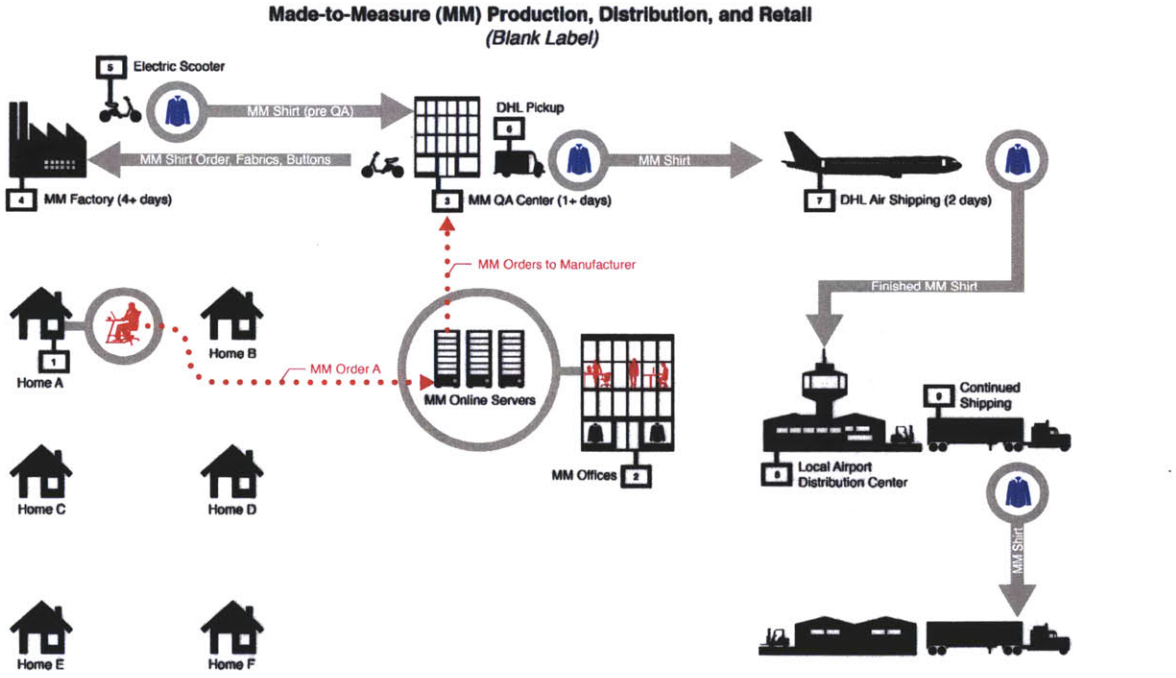

***Step 8.*** MM (Blank Label)



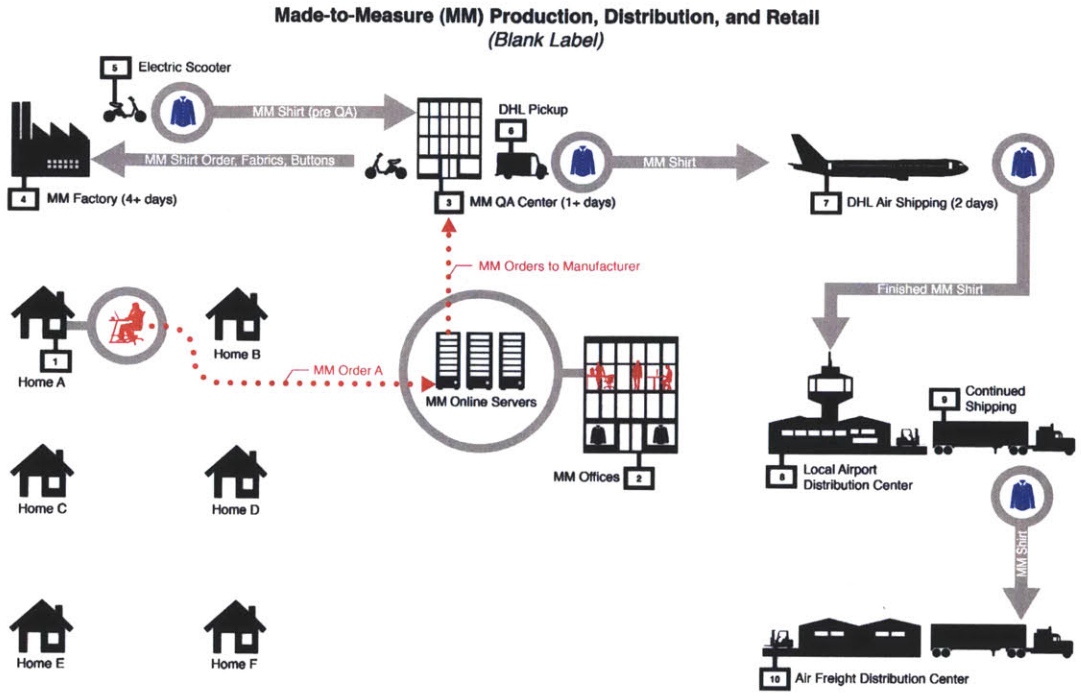

***Step 9.*** MM (Blank Label)



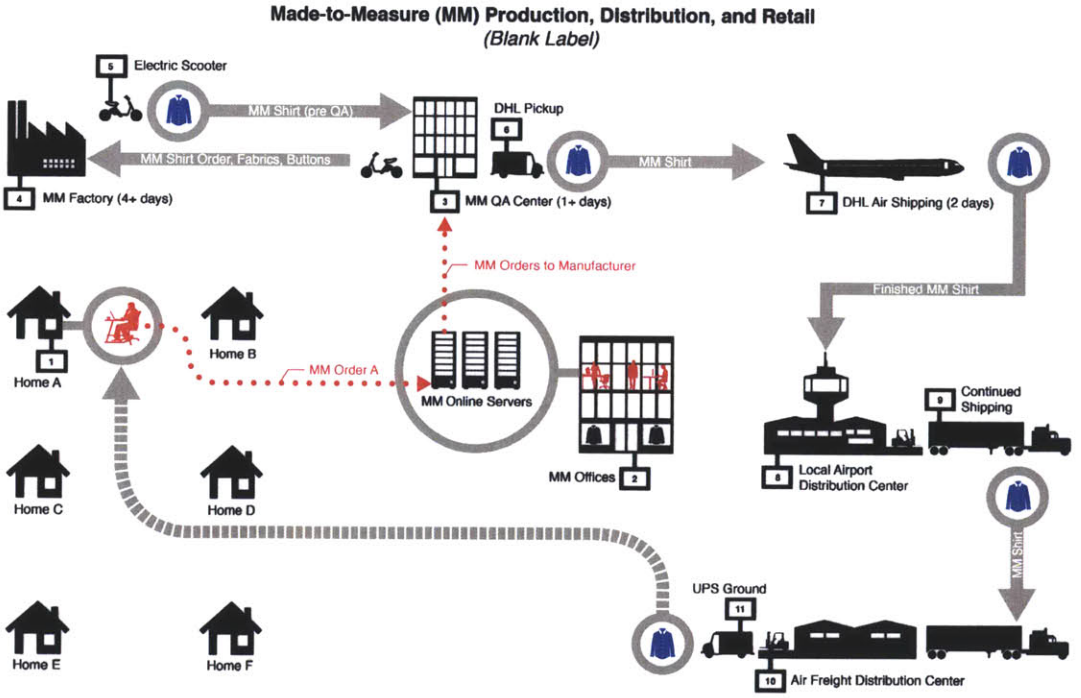

***Step 10.*** MM (Blank Label)



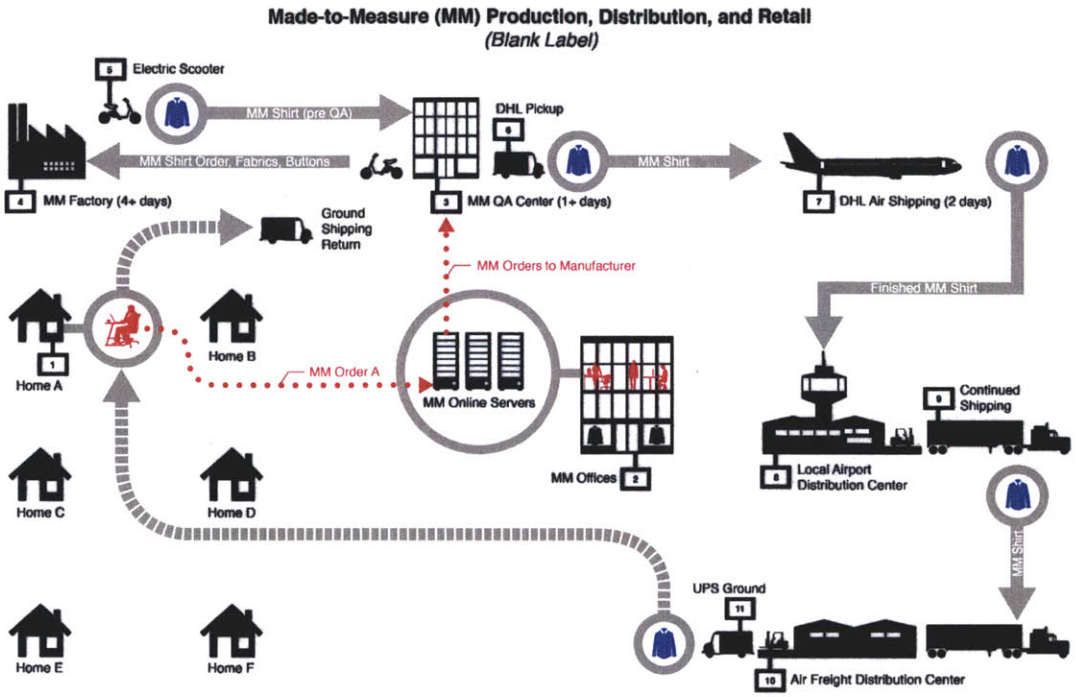

***Step 11.*** MM (Blank Label)




***Step 12.*** MM (Blank Label)

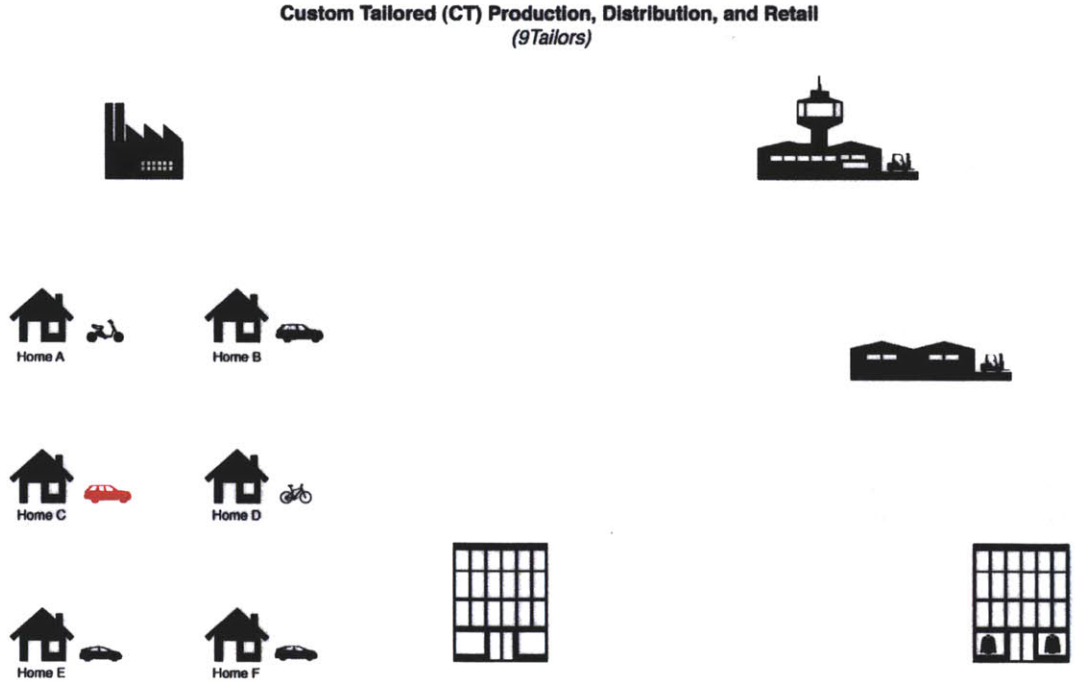



***Step 13.*** MM (Blank Label)



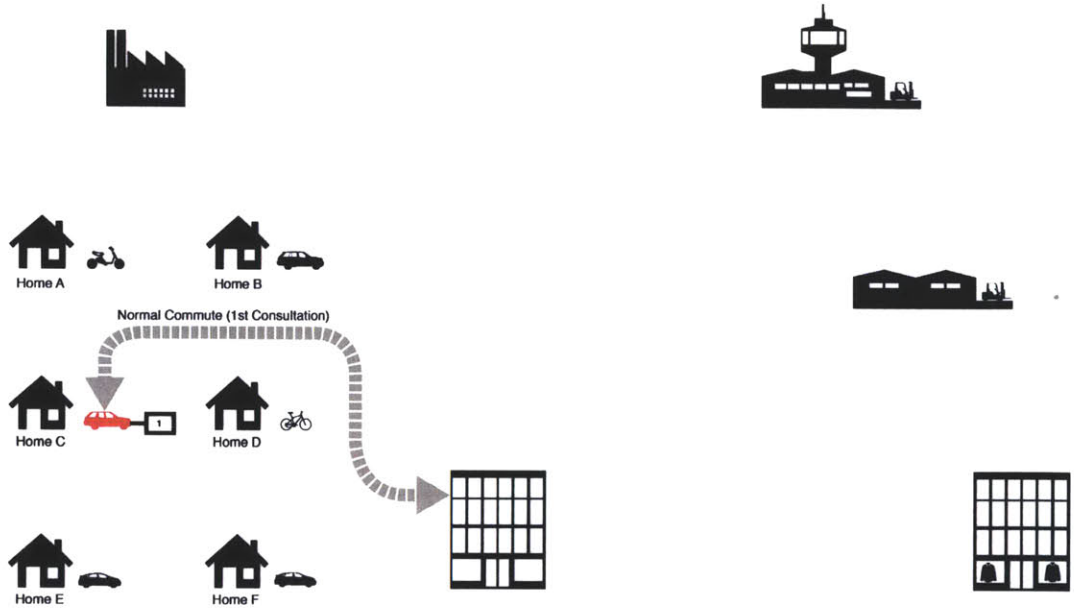

***Step 14.*** MM (Blank Label)

CT (9Tailors with alternative last step) Manufacturing and Distribution Sequence



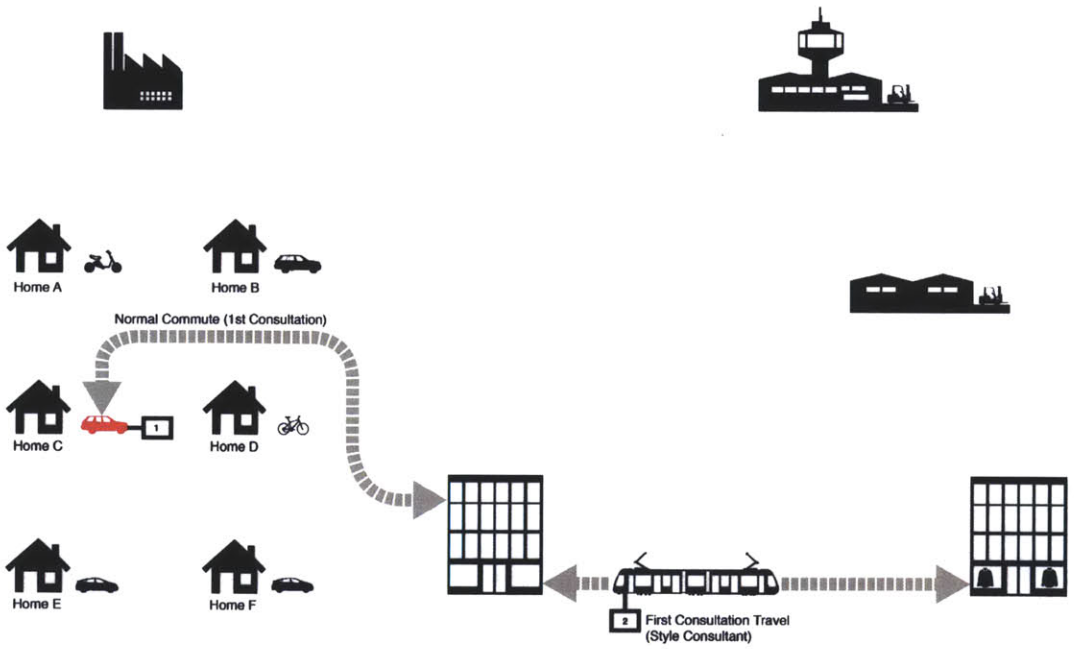

***Step 0.*** CT (9Tailors)

**Custom Tailored (CT) Production, Distribution, and Retail**
*(9Tailors)*

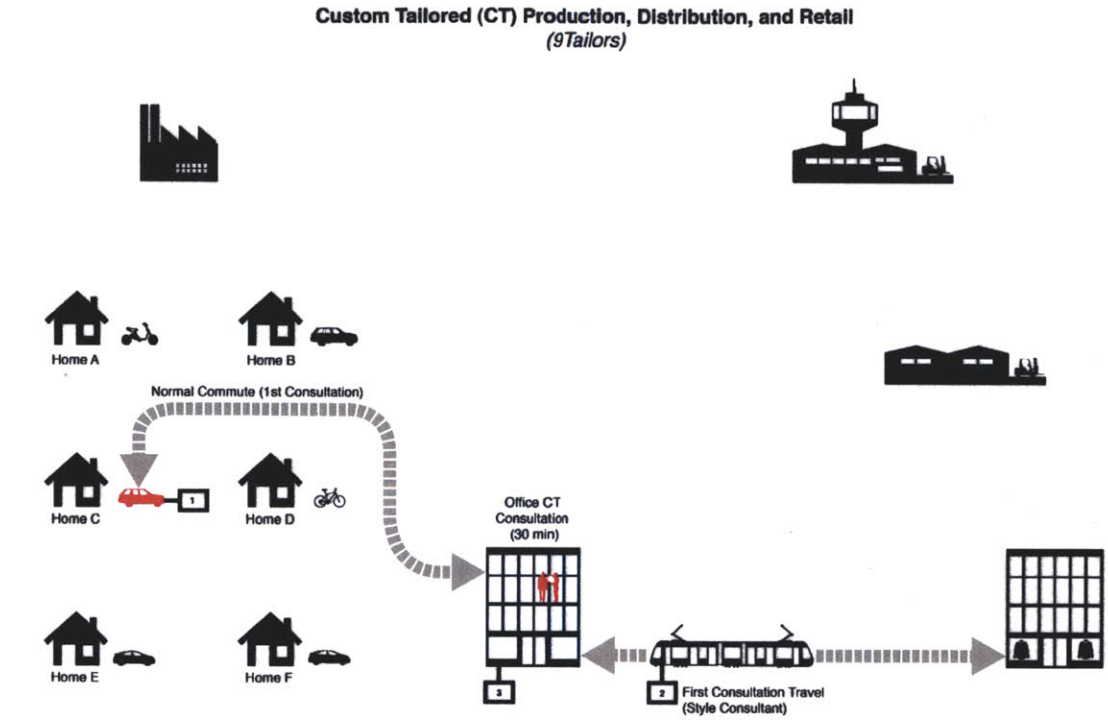



***Step 1.*** CT (9Tailors)

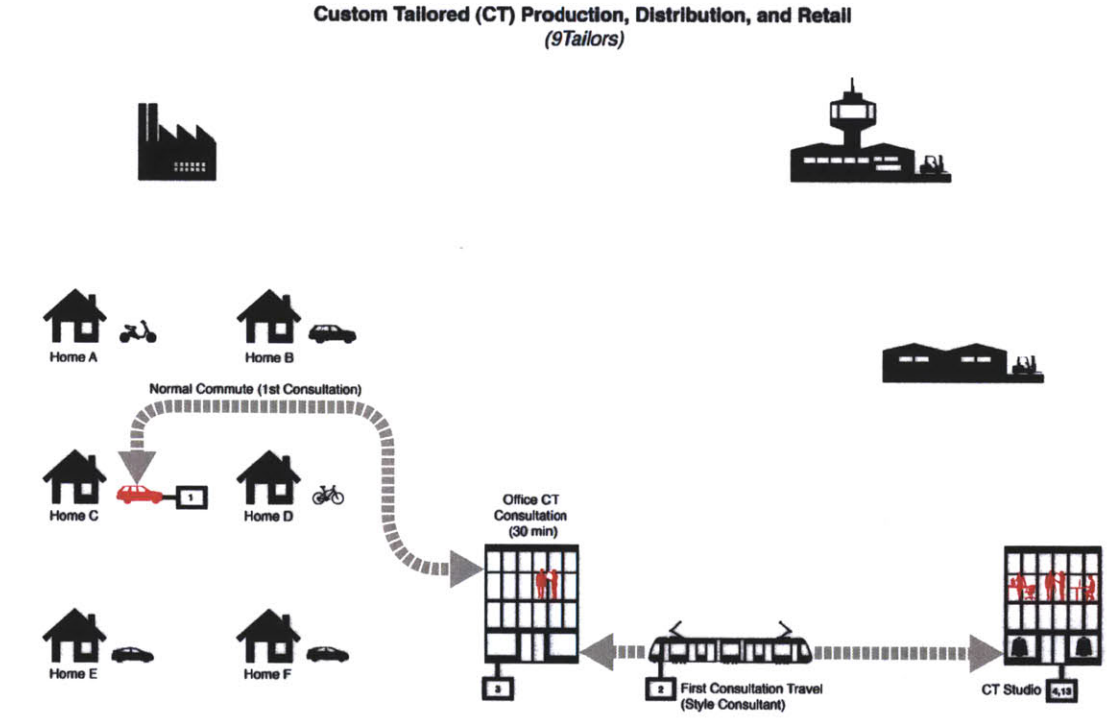
**Custom Tailored (CT) Production, Distribution, and Retail**
*(9Tailors)*




***Step 2.*** CT (9Tailors)

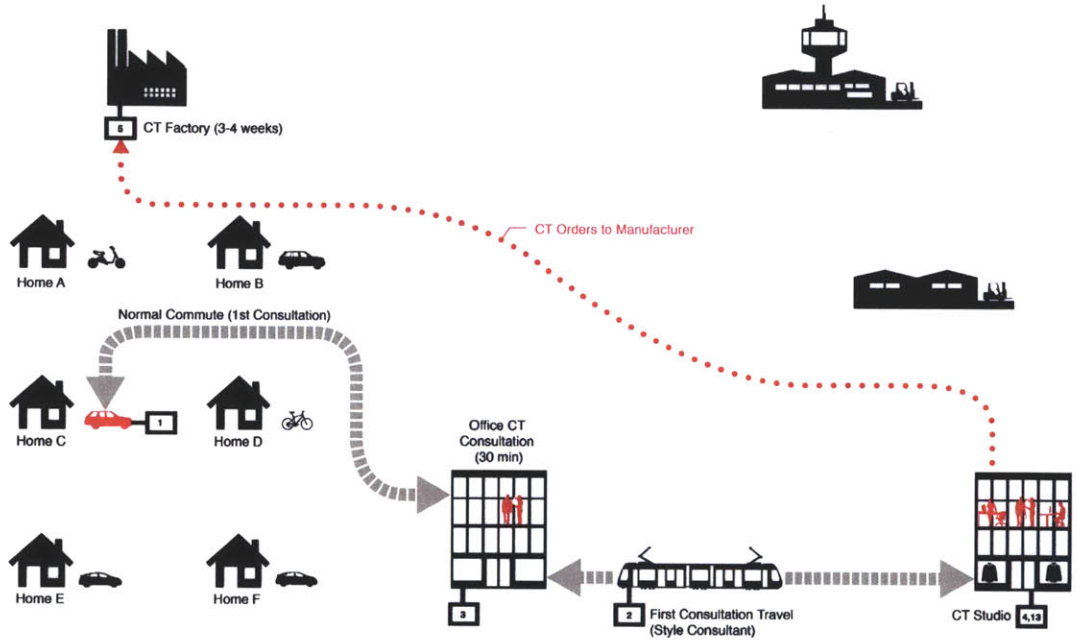



***Step 3.*** CT (9Tailors)



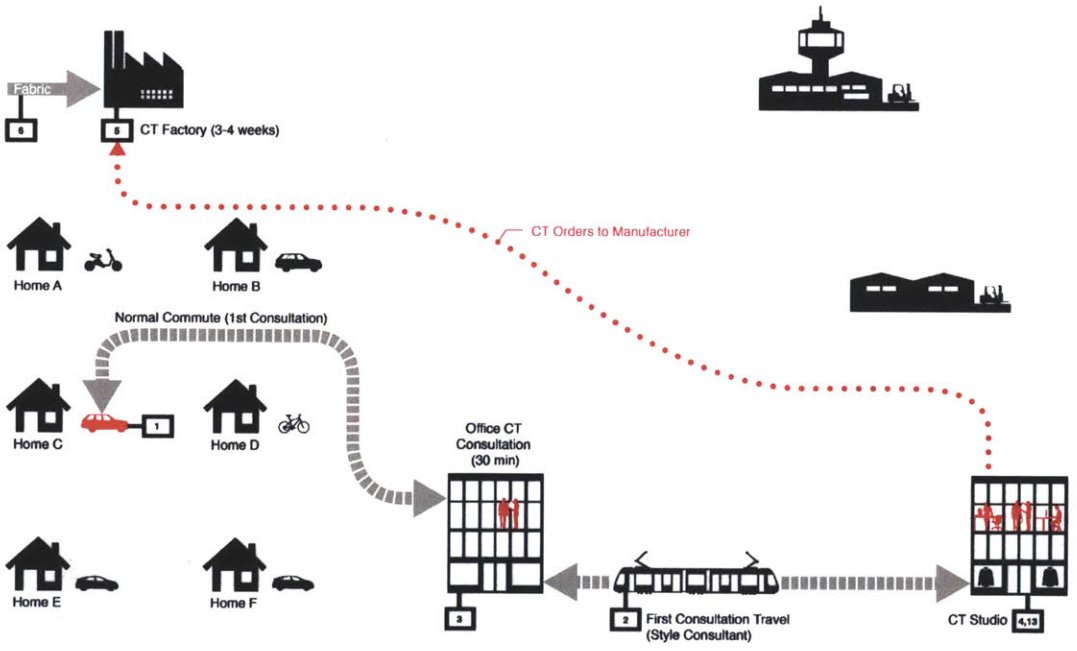

***Step 4.*** CT (9Tailors)

**Custom Tailored (CT) Production, Distribution, and Retail**
*(9Tailors)*

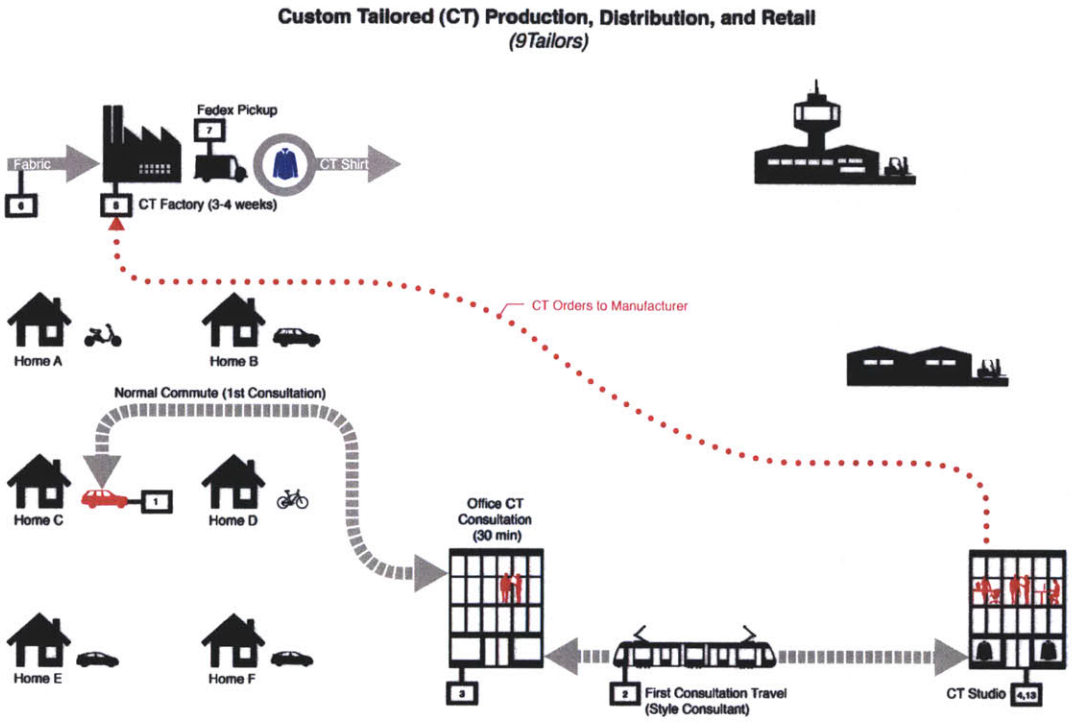



***Step 5.*** CT (9Tailors)

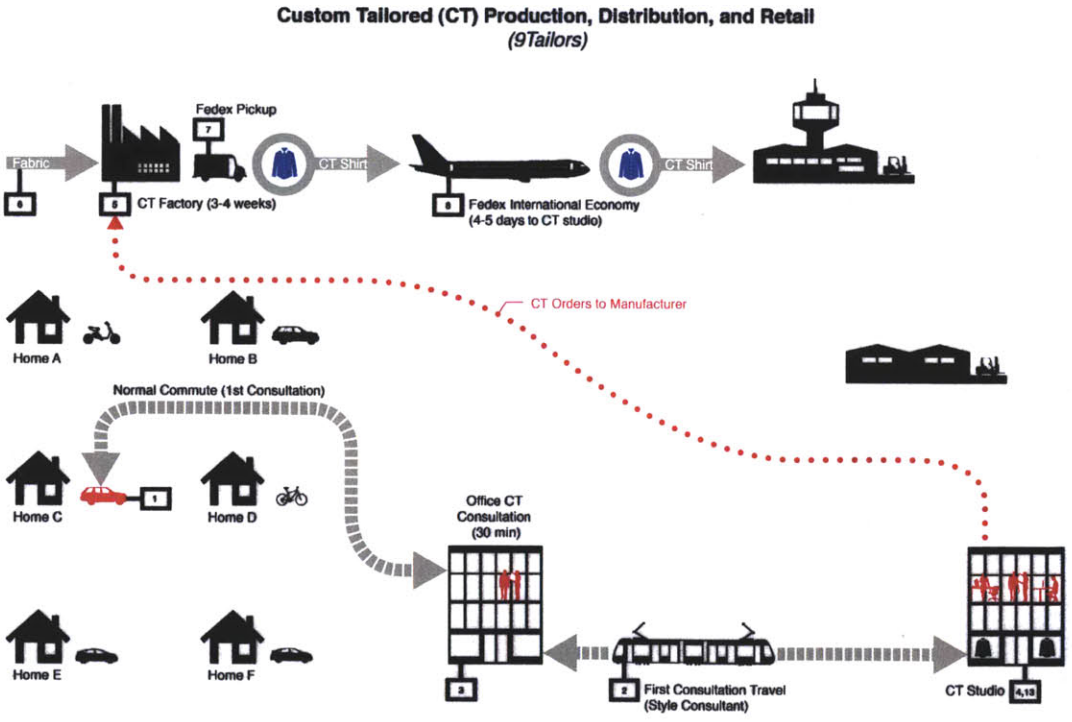
**Custom Tailored (CT) Production, Distribution, and Retail**
*(9Tailors)*



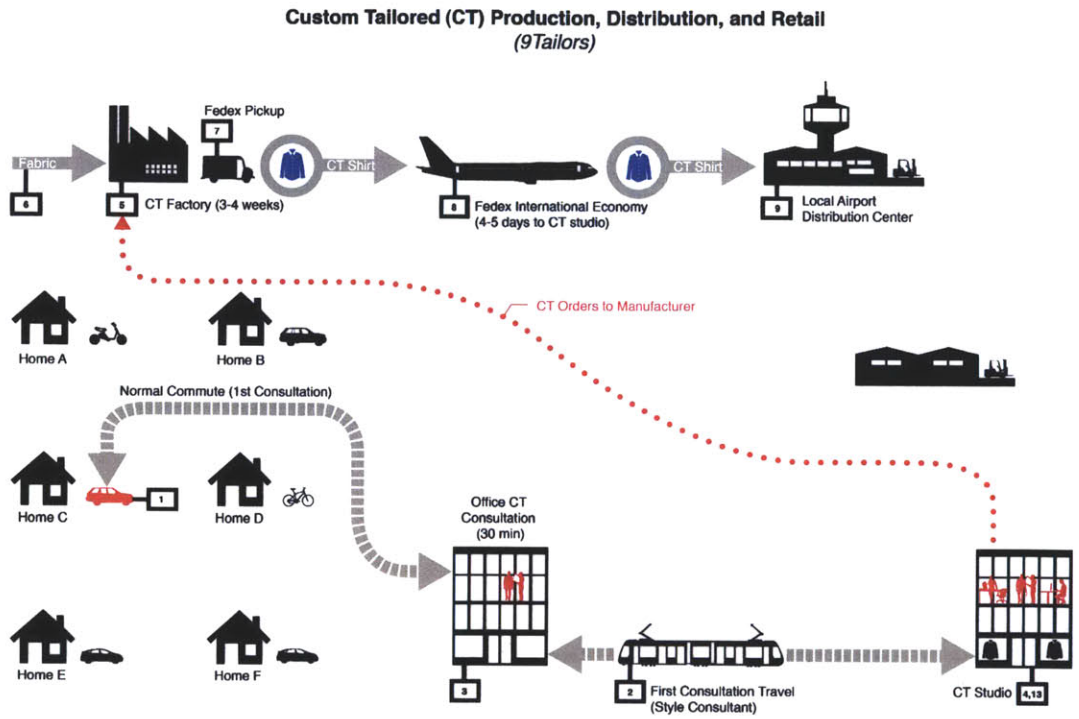

***Step 6.*** CT (9Tailors)



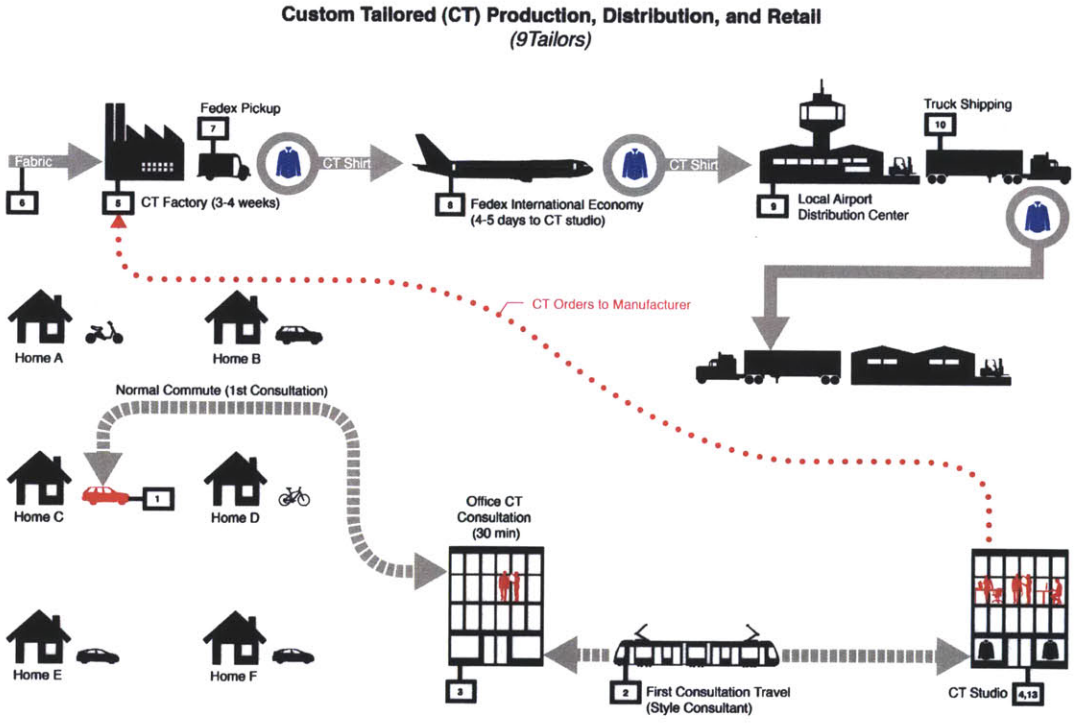

***Step 7.*** CT (9Tailors)



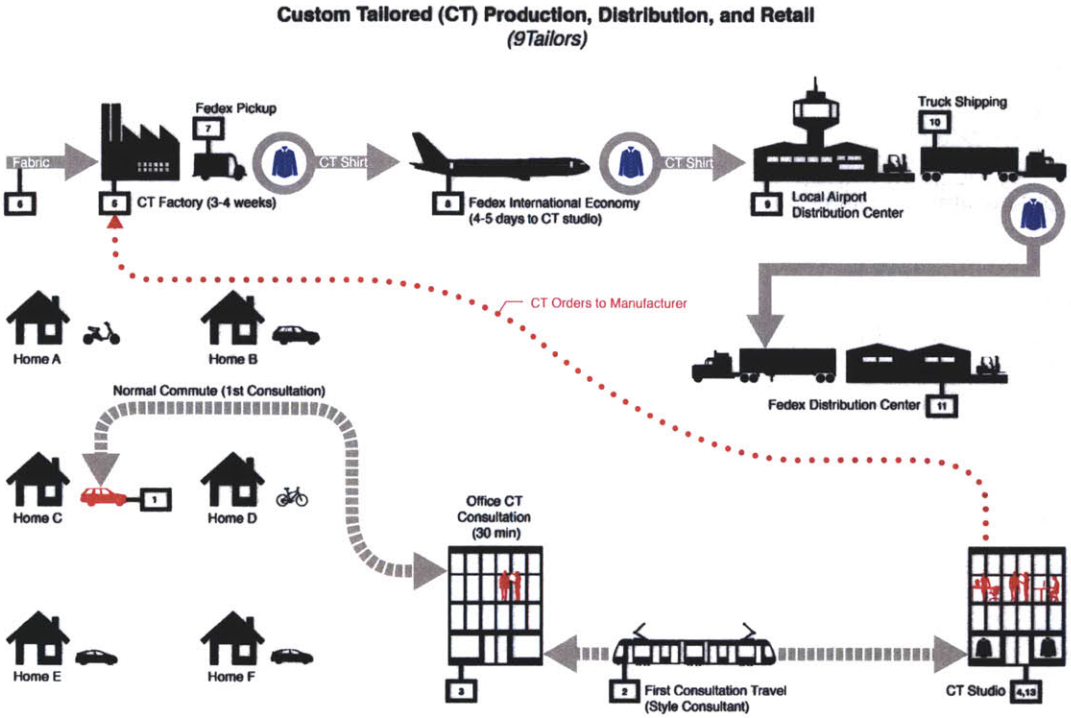

***Step 8.*** CT (9Tailors)



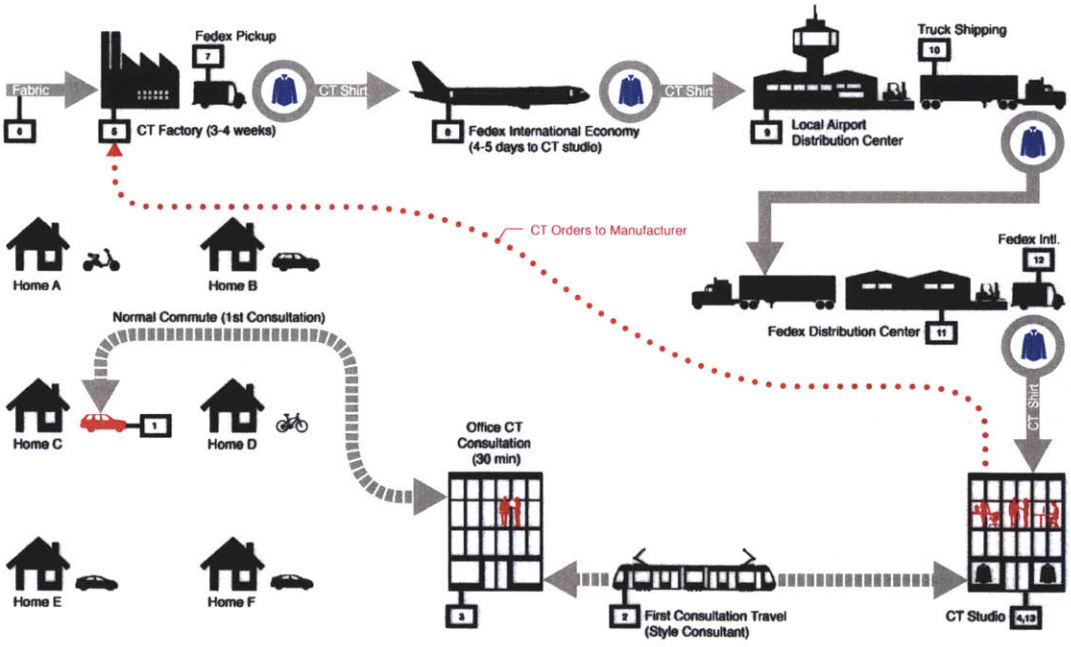

***Step 9.*** CT (9Tailors)




***Step 10.*** CT (9Tailors)

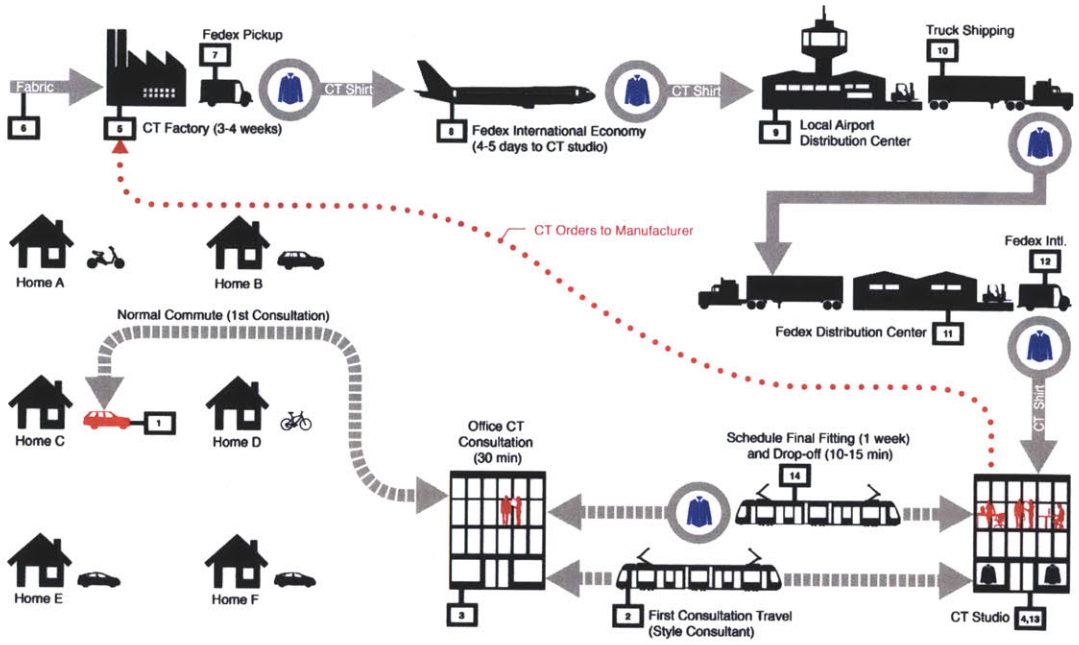



***Step 11.*** CT (9Tailors)



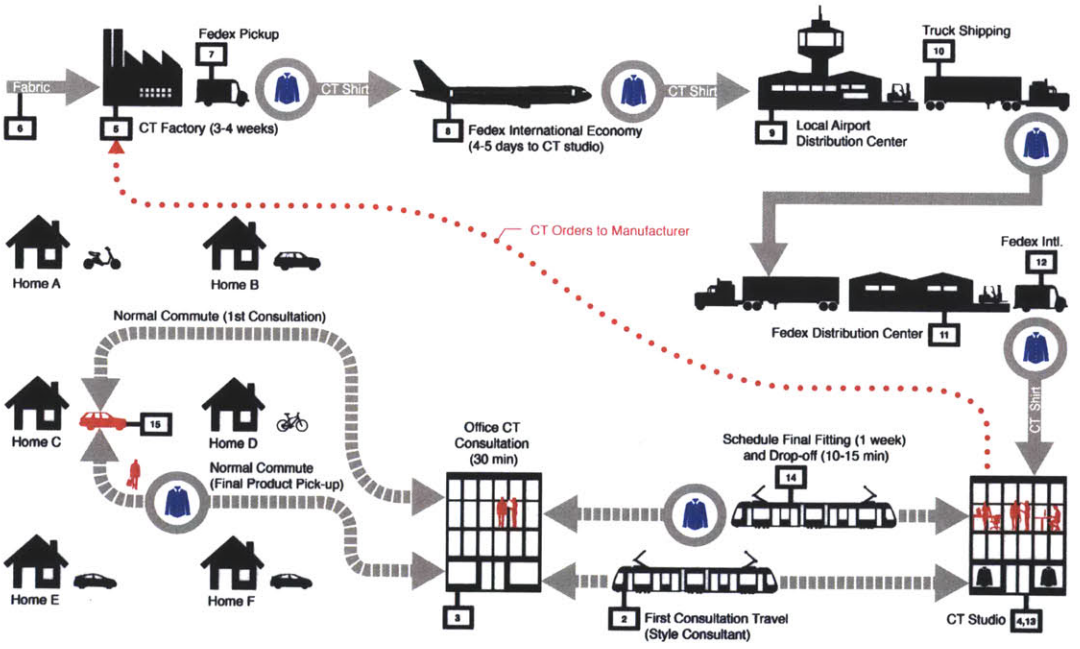

***Step 12.*** CT (9Tailors)

**Custom Tailored (CT) Production, Distribution, and Retail**
*(9Tailors)*




***Step 13.*** CT (9Tailors)

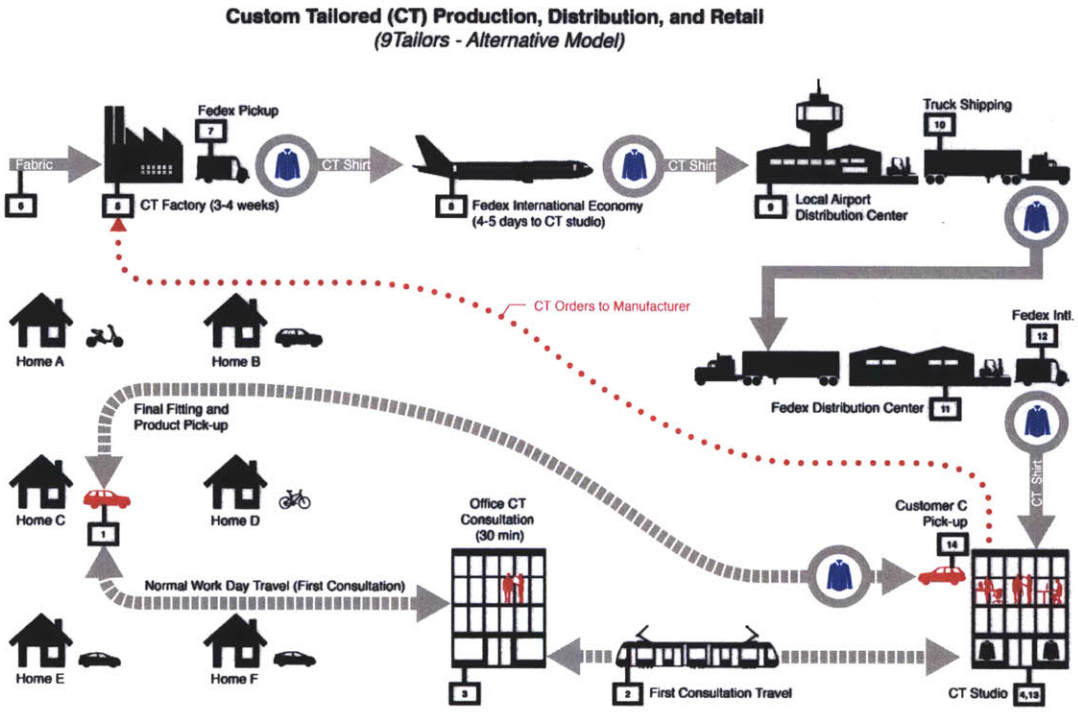
**Custom Tailored (CT) Production, Distribution, and Retail**
*(9Tailors)*



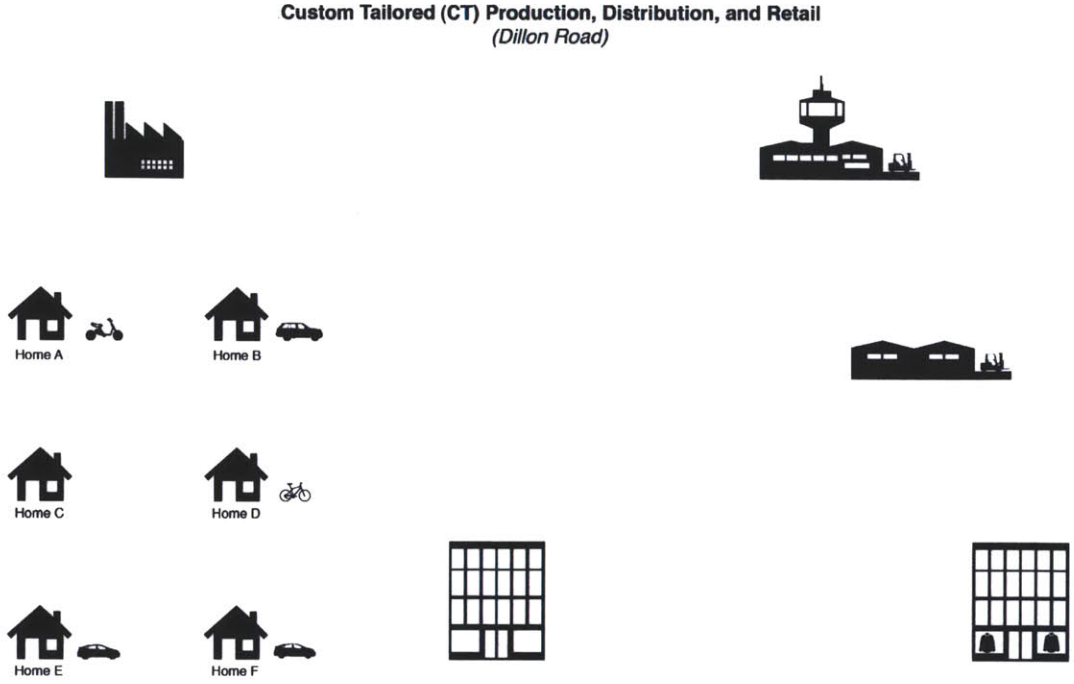

***Step 14.*** CT (9Tailors)

*9Tailors with alternative last step*

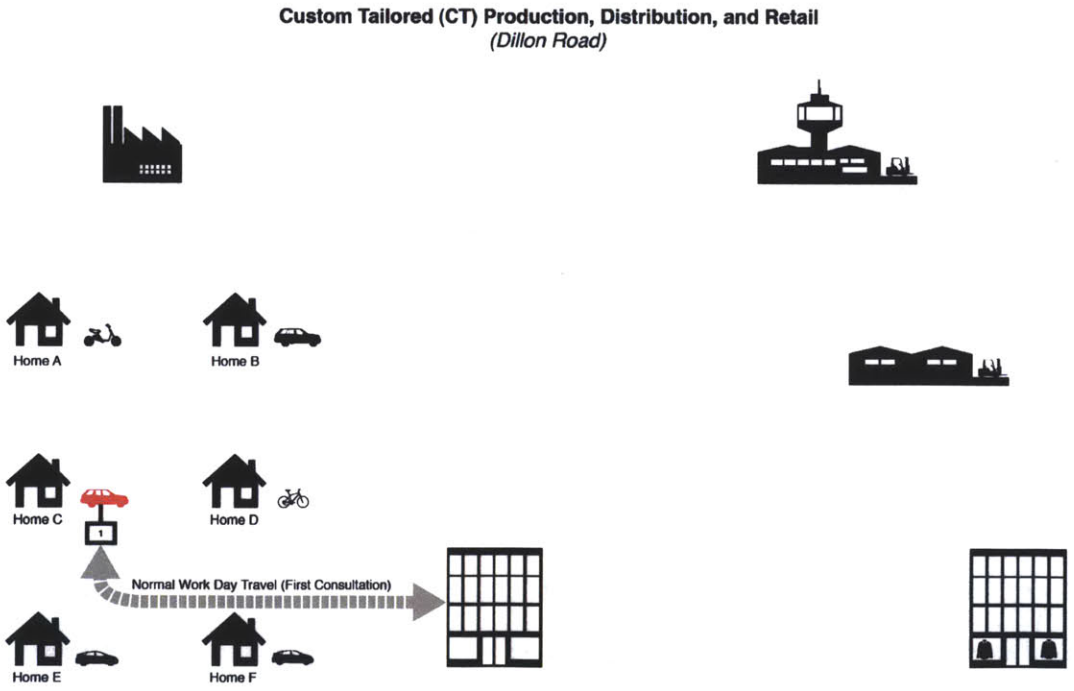
This step requires the customer to travel to 9Tailor's offices for final fitting. Note that this does increase carbon emissions significantly especially if the customer drive's an automobile.



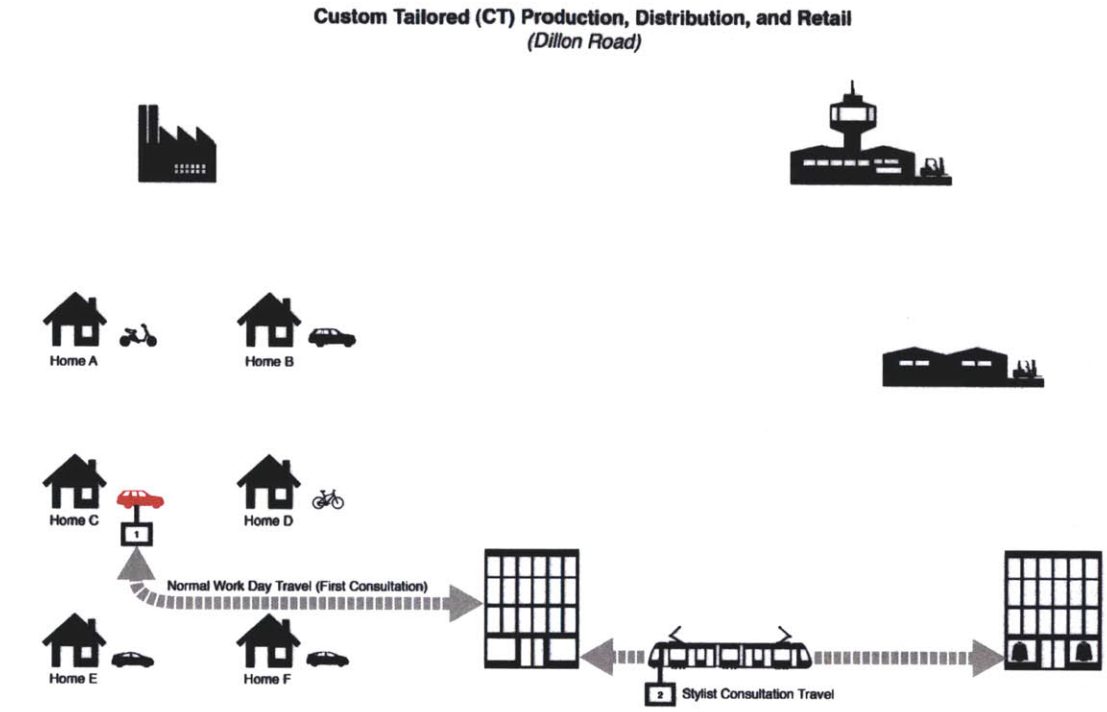

CT (Dillon Road with alternative last step) Manufacturing and Distribution Sequence



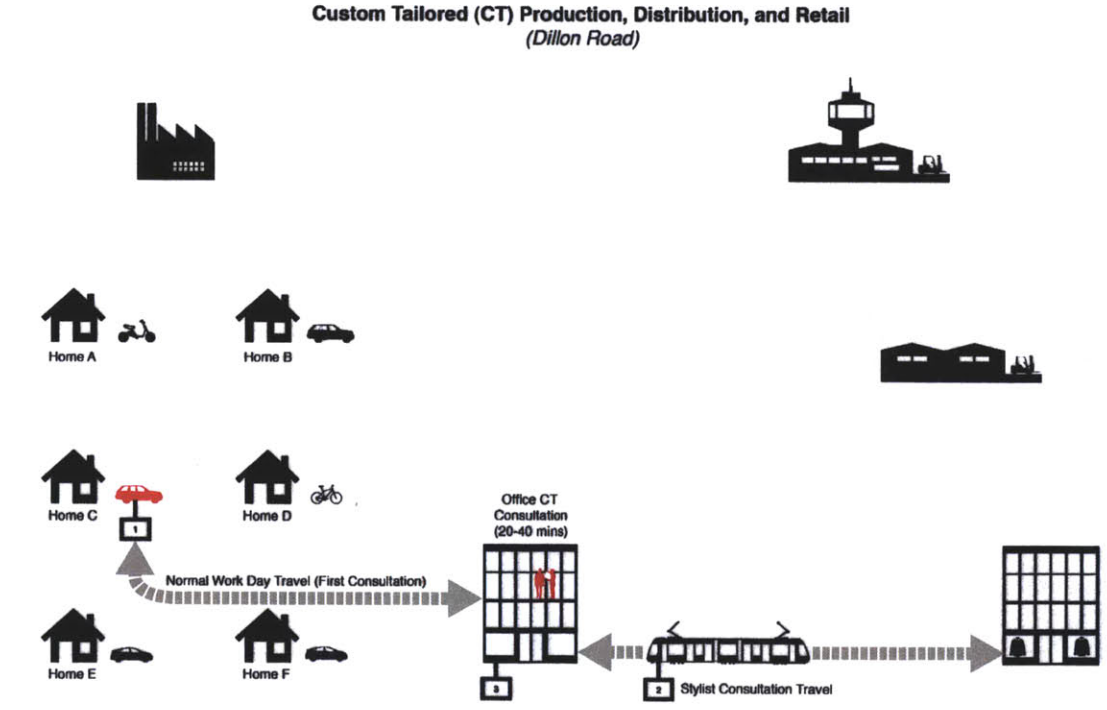

***Step 0.*** CT (Dillon Road)



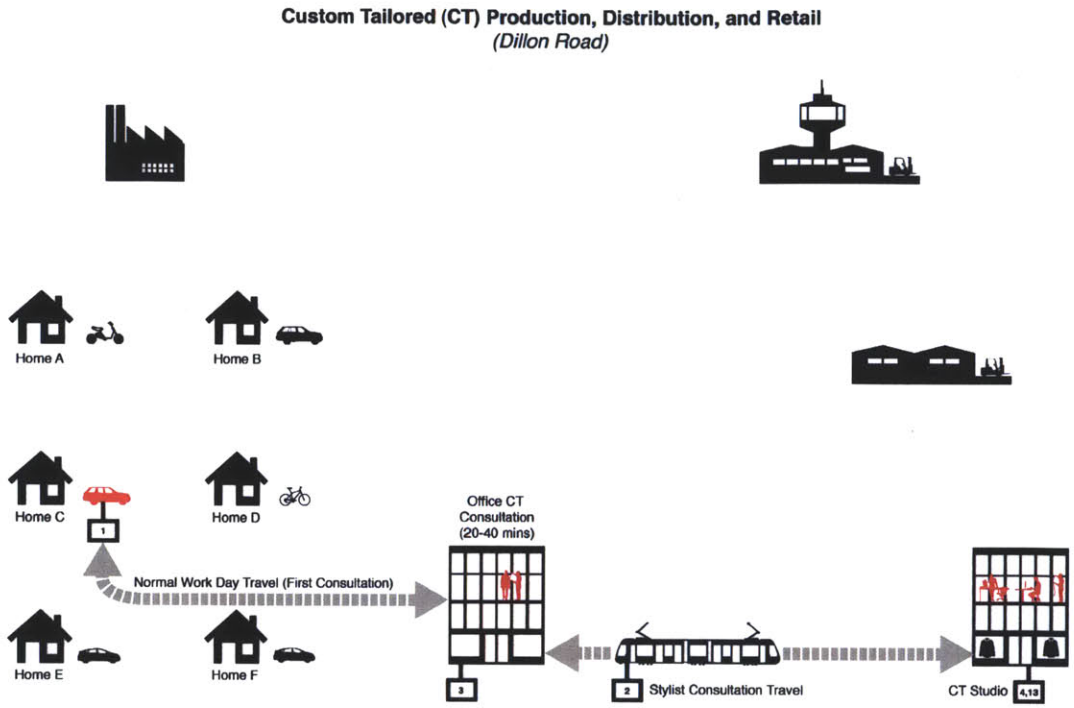

***Step 1.*** CT (Dillon Road)



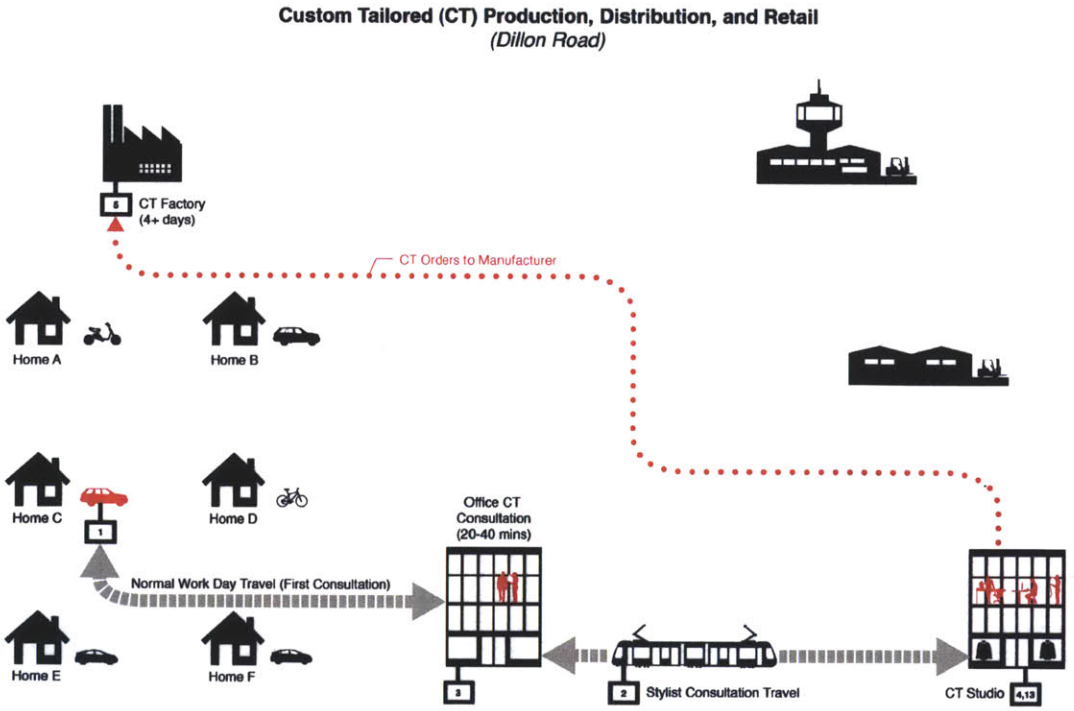

***Step 2.*** CT (Dillon Road)



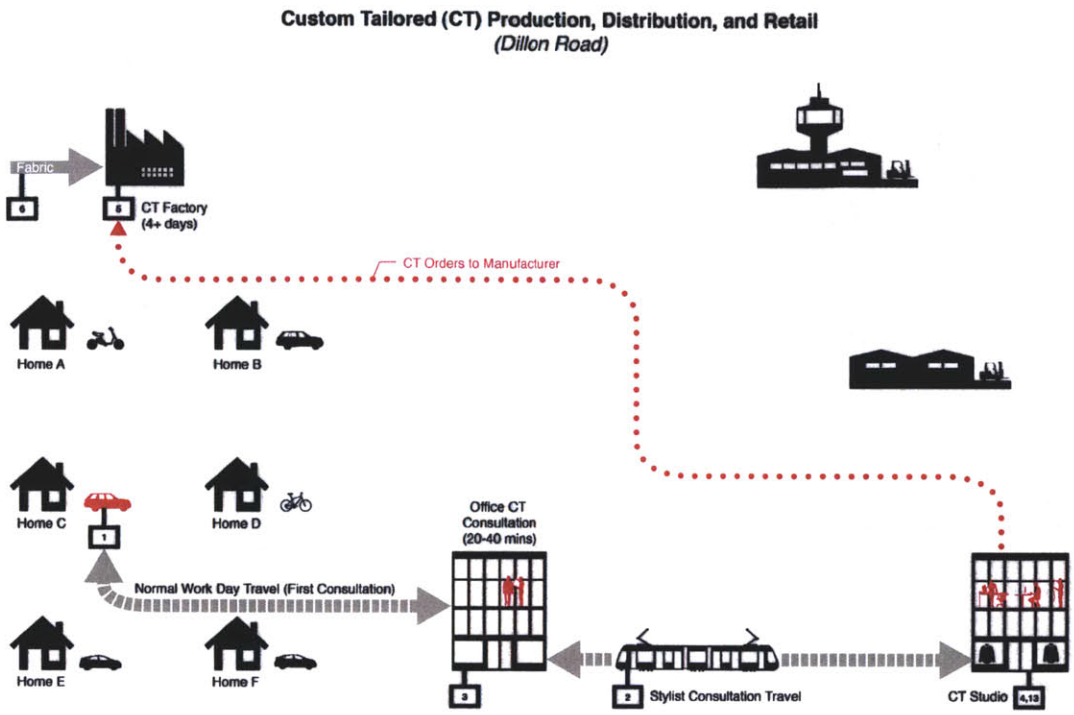

***Step 3.*** CT (Dillon Road)



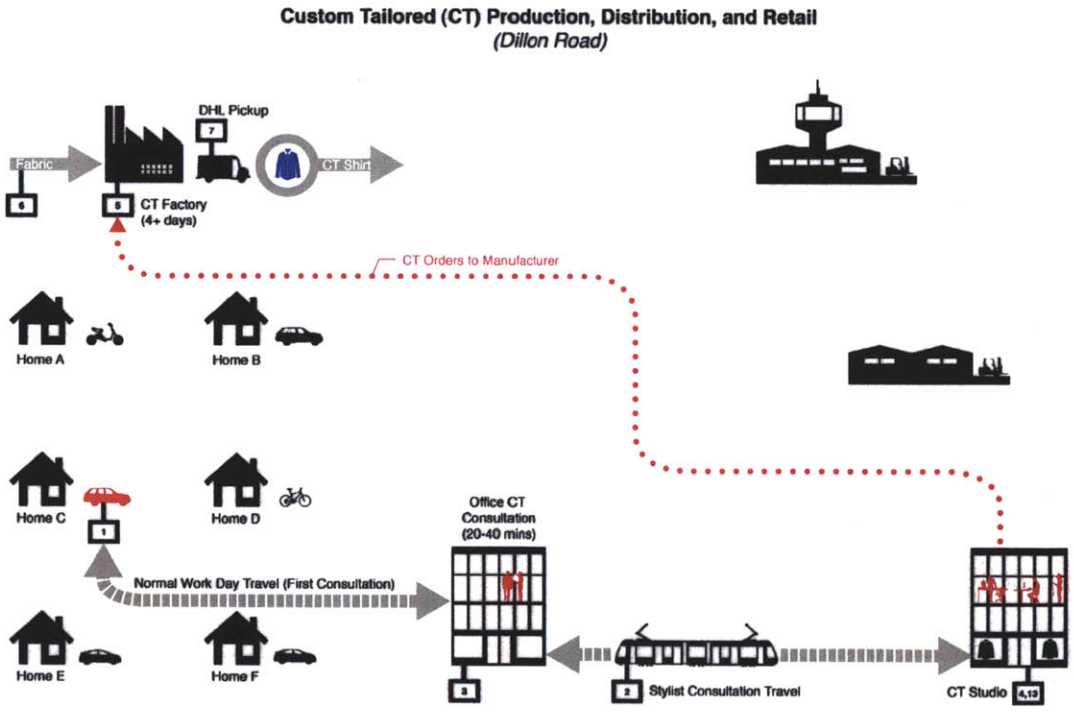

***Step 4.*** CT (Dillon Road)



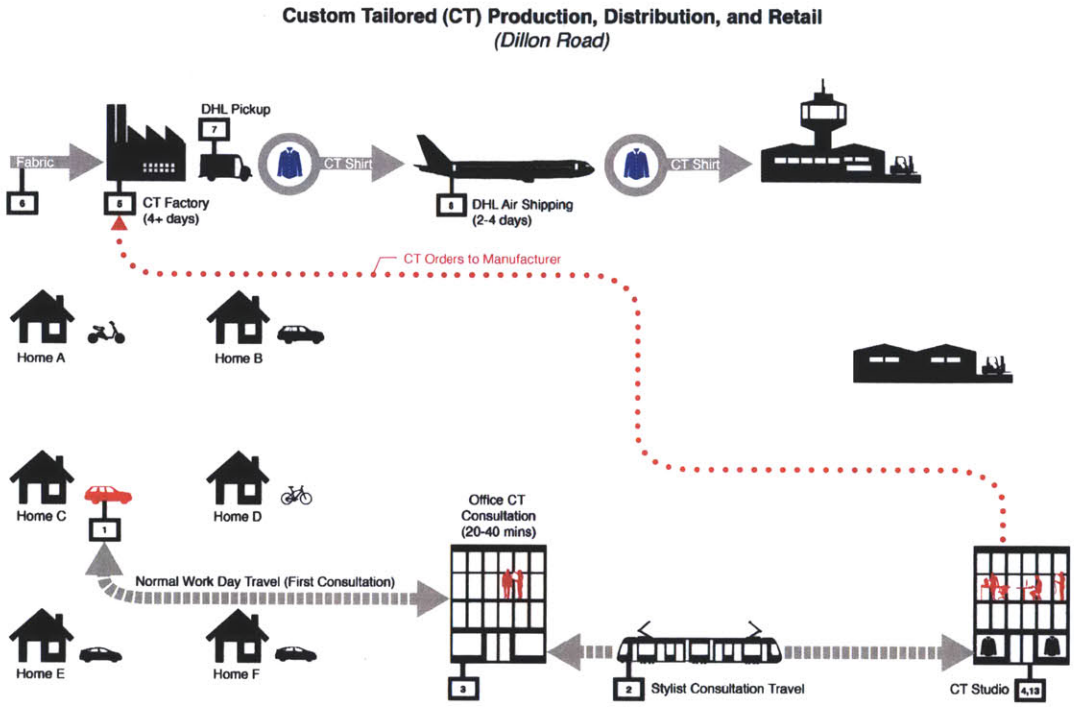

***Step 5.*** CT (Dillon Road)



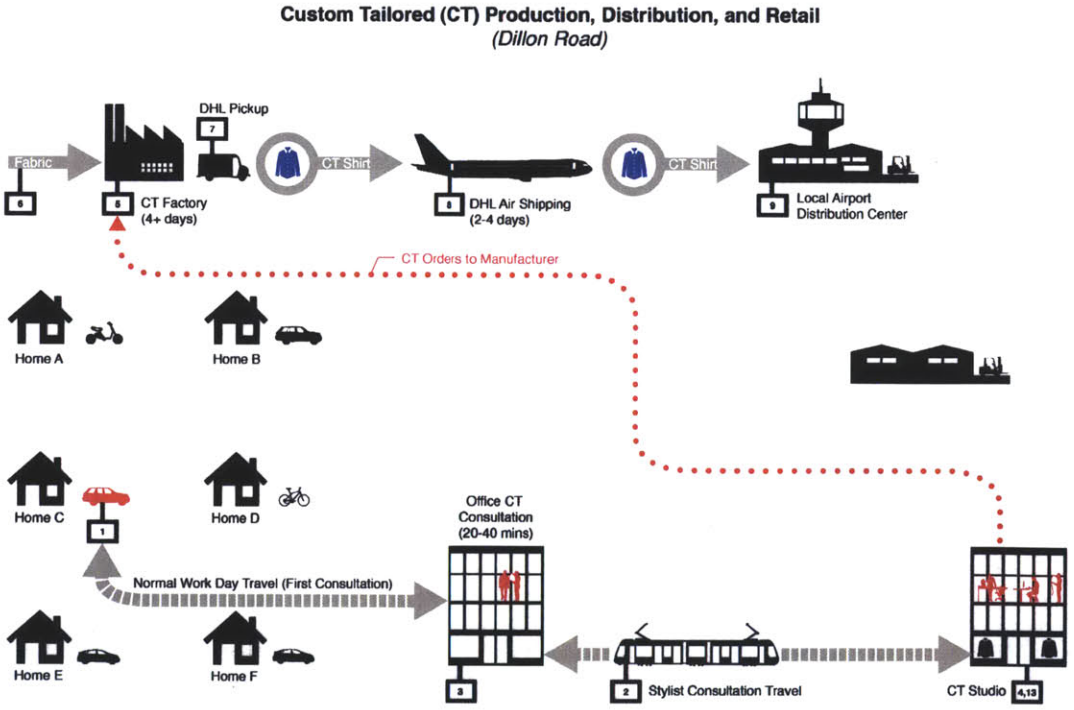

***Step 6.*** CT (Dillon Road)



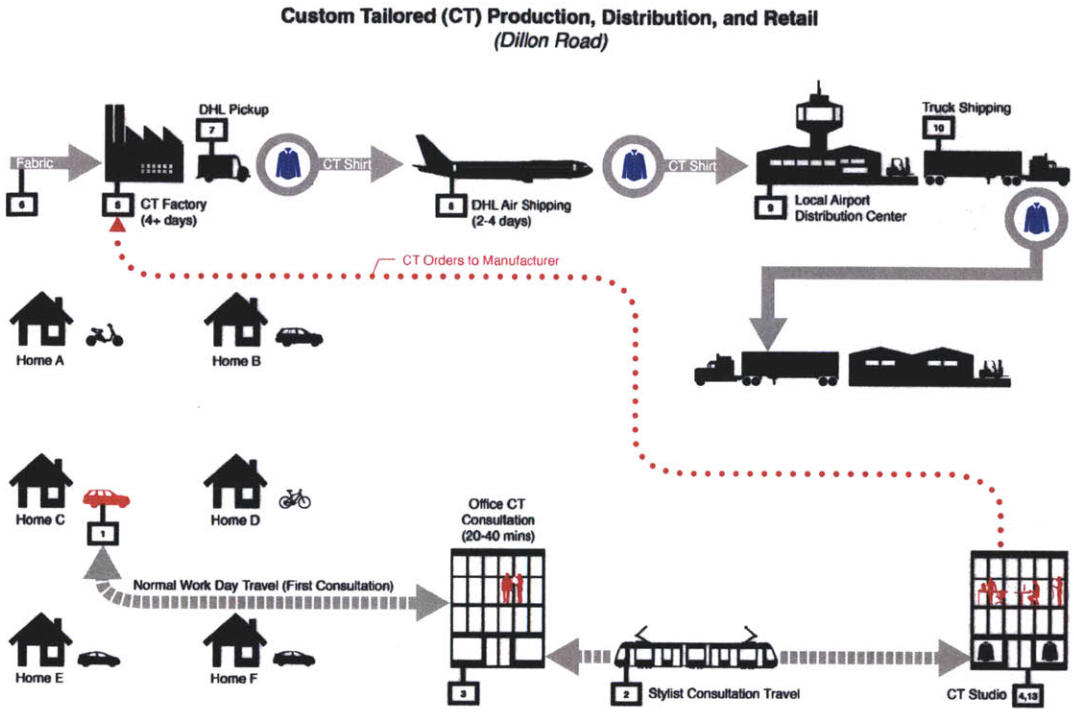

***Step 7.*** CT (Dillon Road)



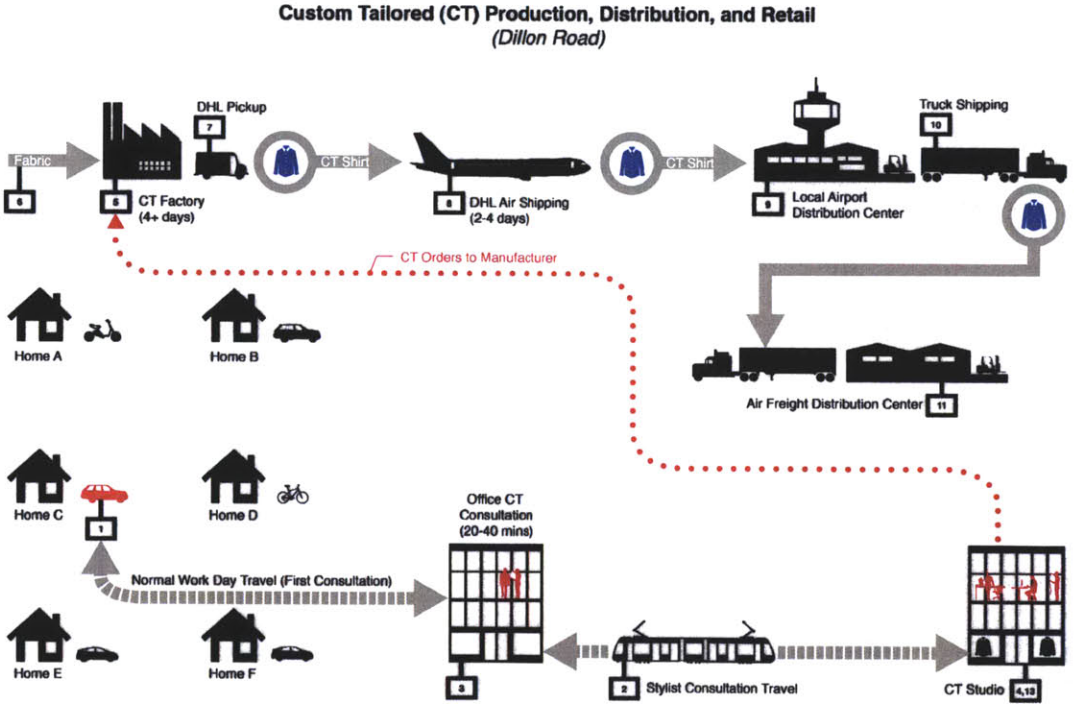

***Step 8.*** CT (Dillon Road)




***Step 9.*** CT (Dillon Road)

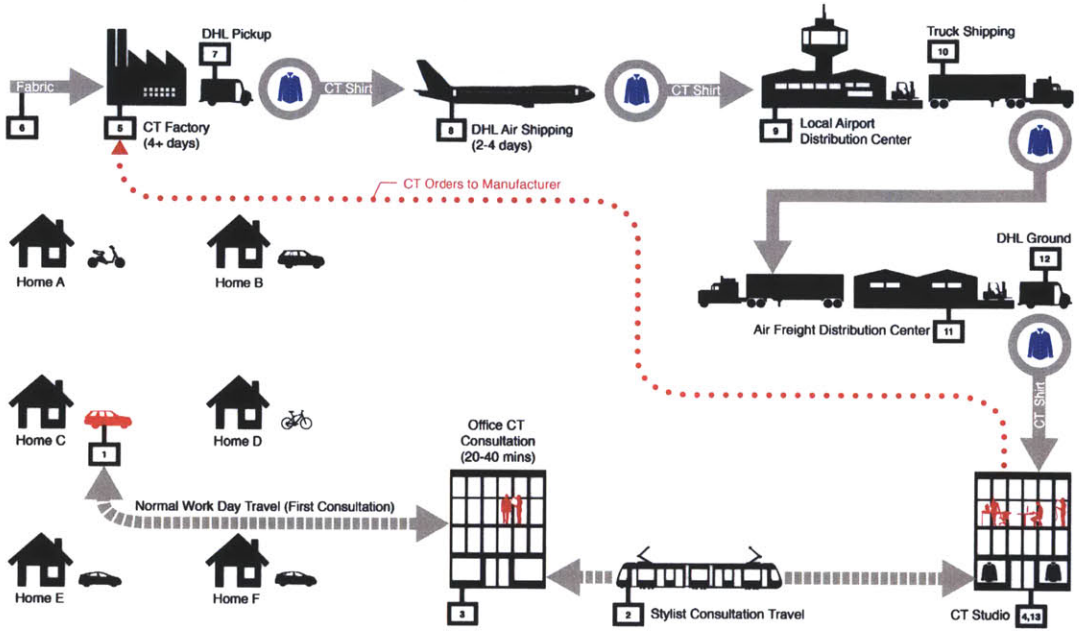



***Step 10.*** CT (Dillon Road)



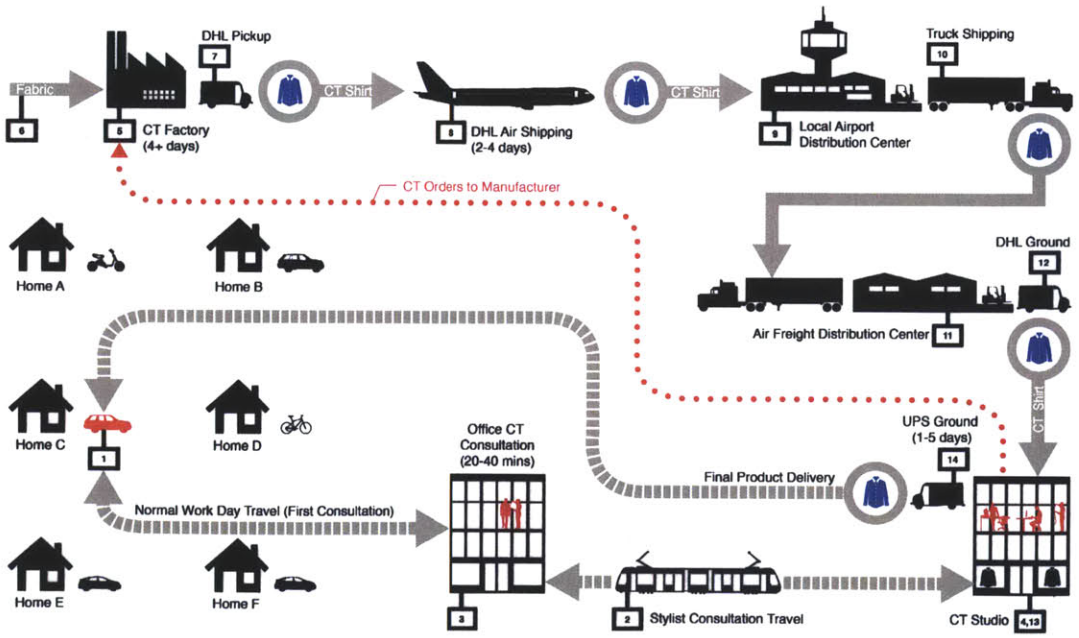

***Step 11.*** CT (Dillon Road)

**Custom Tailored (CT) Production, Distribution, and Retail**
*(Dillon Road)*




***Step 12.*** CT (Dillon Road)

**Custom Tailored (CT) Production, Distribution, and Retail**
*(Dillon Road)*




***Step 13.*** CT (Dillon Road)

*Dillon Road with alternative last step*

This step is similar to 9Tailors's last step in the study (Step 14) in which the style consultant receives the shirt at the CT studios via airfreight, and then utilizes public transport to deliver the shirt for the final fitting. This is typically done for all customers in the NYC area for Dillon Road, however, for other markets the style consultant typically travels, often for more than 10 miles in one direction, for the first and second meeting. This drastically increases carbon emissions for all markets outside their home base of Manhattan.

# Appendix B

**Exit Interviews with MC shirt retailers**
Interviews with Fan Bi, Chief Shirt of Blank Label (MM), and Samatha Shih, CEO of 9Tailors, LLC provide answers to an end-of-study interview on their retailing business.

**Shirt Study Interview: 9Tailors, Samantha Shih**

This interview will focus mostly on the energy and environmental benefits of mass customized men's dress shirts. The majority of our questions aim to uncover key insights in your company's process, so that we can evaluate metrics like carbon footprint, material use, and energy use from the perspective of both the retailer/manufacturer and consumer. We completely understand that you may choose not to answer some of these questions for business, privacy reasons, or simply don't have the data. We will not publish any sensitive information and materials.

Your responses will be particularly important in the development of product lifecycle flow diagrams (factory to customer). Once we have completed our study we can share with you the results from the surveys and experiments we have conducted.

**General Questions**

1. What is your particular role in this company?

   *Founder/Owner*

2. Do you consider your company a mass customizer, mass producer, custom tailor, or other type of company? (i.e., fashion services that produces apparel)

   *CT. Wanted more face-to-face interaction. Customer based wanted to utilize the website more. Making better decisions. More customers are local.*

3. Besides men's shirts do you sell other products? And if so, do you go through similar processes?

   *Suites, men's accessories (not self-produced on consignment). Women's suites, dress shirts, outwear for men (no women yet).*

4. Do you have your own manufacturing operation or do you outsource or contract manufacture?

   *Outsourced manufacturing.*

5. How do you acquire new customers? (Marketing, word-of-mouth, referrals, website, etc.?)

   *Referrals, press, or deal sites (gilt, group-on).*

6. Do you have customers all over the US and world or it just local? If it is local what is your radius of operation?

   *Most are in Boston, some in NY (mostly college grads from Boston have that moved).*

**Ordering process**

1. How many style consultants do you typically use per office visit?

   *Don't tend to do too many mostly because of physical location. About 90% on-site, some drive (mostly public transit or walk – State street, Hancock building).*

   *HBS, MIT, Dartmouth (Tuck School of Management), off-site, school visits twice a year. 3 to 4 schools. Students end up in NYC. Go do office visits there. Sometimes rent an office in NYC. We'll send to item first, then do subsequent fittings. Suites need more fittings. Additional delivery fee required. 90% of shirts don't need additional fitting (no third visit).*

2. How many customers do you usually have per office visit? Per trip?

   *10-15 people per visit.*

3. How many office visits do you typically have in a week?

   *Once a month for schools and other. Providing shirts for liberty hotel (do fitting at location).*

4. What is the typical distance traveled by your consultants?

   *Mostly walk or take the T.*

5. In what mode do they typically travel (car, walk, bike, T, etc.)?

   *Drive to schools. NYC (once every other months), take the bus.*

6. How much time do they typically spend per customer (office vs. store)?

   *30 minutes per person for office. 45 minutes in store.*

7. What is the ratio of customers that come to visit your store vs. office visits?

   *About 90% come to store.*

8. What is the typical number of shirts per order from each customer?

   *2.*

9. What percentage are repeat customers?

   *40%.*

10. What is the average purchase price for your men's custom dress shirts?

    *120-145$.*

**Manufacturing**

1. How do you manufacture the product? Is any of the process automated?

*Process is manual. Cut by hand, save patterns, use a machine for sewing. Making new patterns for each customer. Bespoke model – save the pattern (for shirts). They are not M-to-M set pattern to trim.*

2. Where is the manufacturing done?

   *Hong Kong.*

3. Is your manufacturing process only for custom manufacture or is it part of a larger mass production manufacturing operation?

   *They make custom for other vendors, mostly custom.*

4. How large is the manufacturing operation in terms of size of facility?

   *Approximately 50 tailors plus other support staff (estimate from 9Tailors)*

5. How do you package your product? (How do you get it from the manufacturer? How do you deliver it to your customer)?

   *Fedex box, individually packaged in plastic. They inspect each shirt, try not to repackage unless plastic packaging has been ripped. They do use plastic to packing for second shipping.*

6. Could you estimate how many people are utilized in manufacturing?

   *Not sure exactly. Manager of factory says – they have people that do only cuffs and collars. Others do the body. Touched by at least 2 people, one person for quality.*

7. How many shirts do you produce per day on average?

   *Weekly 50-60 shirts – 9Tailors. Manufacturer has other vendors. Orders are emailed once a day.*

8. Could you describe how you generally handle fabric inventory? Do you keep a stock of limited quantities or do you order inventory as orders are made?

   *No inventory. 9Tailors is reliant on them. Sometimes source fabric, but not very often.*

9. Where does your fabric inventory come from? (i.e., where is it made).

   *Fabric from UK, China, Italy, Japan (higher end from Italy). Carry mostly $150 and under is predominant stock for shirts.*

10. What percentage of your fabric selections are stable (i.e., sold frequently enough to reliably stock inventory) as opposed to fabrics that change frequently (like seasonal fabrics)?

    *Unknown how manufacturer handles fabric inventory. They always have stock readily available.*

11. Do you use push or pull strategies with respect to fabrics?

    *Manufacturers don't push. They order what they need.*

12. Do you aggregate orders before starting manufacturing?

    *Places orders once a day. No understanding of how manufacturer handles aggregate orders from multiple vendors.*

13. If you have surplus inventory, what do you do with it (i.e., do you have discount sales)?

    *When we want to sell samples off.*

    *1% Total money back (customer didn't want to receive).*
    *4% Partial orders which includes small mistakes that can be corrected locally (without shipping back to manufacturer. This includes any error (everything from manufacturing error to client issue)*
    *5% Remakes – Mistakes that are not correctable locally, there remade in Hong Kong. This includes any error (everything from manufacturing error to client issue)*

    *Capable of fixing onsite – bicep too large, shirt is too large, tapering in more, button replacement. Sleeves to Torso, need to be remade. Rare occasions.*

    *Fit is subjective, they try to persuade you into a reasonable fit expectation. Inform customers on what they mean by certain types of fit.*

14. Would you be able to estimate shirts/operator per day?

    *No information.*

15. How much time on average does it take to make a single shirt?

    *Manufacturer takes 4-5 weeks (including shipping). Rush order – More strict. Manufacturer ships every Friday (2 weeks is fast).*

16. How much waste do you estimate is created when making a shirt? (i.e., what percentage of fabric do you utilize in making one shirt, does this scale with multiple shirts of the same fabric)?

    *We recycle as much as possible. Pocket squares of out shirting material. Turn materials as flower pins. Waste is hard to determine. Exact waste of HK manufacturers is unknown.*

17. If you have any waste in manufacturing, what do you do with it? (i.e., recycle, trash, reuse creatively, etc.)?

    *Recycle as much as possible.*

**Shipping**

1. How do you ship shirts from the manufacturer (air, ship, truck, combination)? Could you

tell us in detail?

*Once a week using Fedex international economy. (4-5 days).*
*Shirts shipped on Friday in China arrive on Tuesday in Boston. They don't use International priority often – 2 days (Monday gets here on Tuesday).*
*Memphis, Anchorage (routing centers).*
*Local shipping is Fedex (ground).*

2. Do you ship them to your office then deliver them to the customer? And to which location do you deliver?

   *90% come to the office. The rest is shipped locally using Fedex ground.*

3. What percentage of your customers come and pick up the shirt at your location?

   *Already answered.*

4. What percentage of your customers are too far away to pick up a shirt at your location?

   *Small percentage to NYC and places like Yale university (about 10%. Total).*

5. Could you give an overall breakdown of the time tables for shipping? (i.e., finished product to your office, office to customer for first fitting, etc.).

   *4 weeks for manufacture*
   *4-5 days for shipping*
   *1 week for pick-up and second fitting*
   *2-3 weeks for a remake if necessary.*

   *Side comment – Sometimes customers don't pick up immediately (over one year).*

6. Do you collect them in batches and then deliver to individual office locations? What is the minimum order quantity that makes sense for bundling?

   *Don't batch ship office visits. Individual will come in for pick up.*

**Final fitting and delivery**

1. What would you estimate to be the average total time from first meeting with customer to final delivery?

   *Answered above.*

2. Do you have a final fitting for all customers? If not, what percentage simply receives the order?

   *90% only need the second fitting.*

3. What percentage of your shirts require additional adjustments? For our study, which shirts needed to be altered?

   *10%.*

4. How long did you typically spend per customer for a final fitting?

   *Quick. 5 minutes sometimes. 10-15 minutes.*

5. If there is an adjustment, where and how is that done? How long does this process take? How many people are involved in this process?

   *One person – does the alteration. One additional person may help with fitting.*

6. What percentage of your final products cannot be repaired and a new one will need to be made?

   *5% need to be remade.*

7. Do you have any returns? And if so, what is the percentage? And if so, what is the policy for returns (i.e., credit towards another shirt)?

   *Nobody wants credits usually – return policy (30 day trial period to wear the shirt around, can come back if they want tweaks). Shirts clients are more generally more flexible than suite clients. If there is a problem they usually apply the credit to the next shirt. Apply to next shirt.*

8. If a shirt is not acceptable to the customer what are the major reasons? (i.e., can't be repaired, wrong fabric/pattern, etc.). Also, what percentage of returns cannot be fixed and require an entirely new shirt to be made? What do you do with the unsatisfactory shirt?

   *Fit is the number one reason. Second is probably that the customer had some special or unique design option that couldn't be reproduced.*

9. On repeat customers do you also provide additional or repeat consultation services or is there a web interface they can use?

   *Web interface is under development for follow up orders. Most customers still want to feel the actual fabrics. B-school students are harder to schedule.*

**Conclusion**

1. Do you think there are other areas of your entire process where you could improve your environmental impact? (e.g., more environmental friendly materials, ordering process, more localized manufacturing, etc.)

   *Reduction of plastic is first concern.*
   *Local manufacturer? Fall River has one by not 100% custom. They make standard sizing, but the pricing is not competitive.*
   *Quality of manufacturers in China, Thailand, Vietnam were not great. Some problems with payments and language barrier in Thailand.*

   *A full time person is employed for doing quality control for suites.*

   *Fabrics – would like to use more organic or environmentally friendly dyes.*

2. What sorts of information or analyses would be useful for you as a company from our study? (e.g., Does the use rate of custom vs. standard shirts after sale matter?)

   *No answer.*

3. Are there any questions you have for the customers that you would like us to integrate into our end-of-study interview with our test subjects?

   *Curious on the quality of the shirt after 3 months of wear and tear? For example, buttons, quality of tread, etc.*

   *All white shirts? For the next study? Avoid occasional wear type shirts in the next study.*

4. Can we have the specifications of the shirts for our specific projects? We would like to verify our data cataloging.

   *Longevity of the shirt – knowing the condition after a time period? Quality of the fabric, how well does it wash?*

**Shirt Study Interview: Blank Label**

This interview will focus mostly on the energy and environmental benefits of mass customized men's dress shirts. The majority of our questions aim to uncover key insights in your company's process, so that we can evaluate metrics like carbon footprint, material use, and energy use from the perspective of both the retailer/manufacturer and consumer. We understand that you may choose not to answer some of these questions for business, privacy reasons, or simply don't have the data. We will not publish any sensitive information and materials.

Your responses will be particularly important in the development of product lifecycle flow diagrams (factory to customer). Once we have completed our study we can share with you the results from the surveys and experiments we have conducted.

**General Questions**

7. What is your particular role in this company?

   *Fan Bi, CEO founder (started in Nov 2009)*

8. Do you consider your company a mass customizer, mass producer, custom tailor, or other type of company? (i.e., fashion services that produces apparel)

   *Online Custom Clothier or online tailor (traveling tailor now online).*

9. Besides men's shirts do you sell other products? And if so, do you go through similar processes?

   *No.*

10. Do you have your own manufacturing operation or do you outsource or contract manufacture?

    *Two manufacturing partners – Office in Shanghai (operations guy – pulls orders each day (M-Sat) – internal pattern maker – she makes 2 yards of material – goes into plastic shirt – 80-90% goes to one manufacturer – makes custom pattern, runs down the line, 2-5 days later, QA staff in China (check sizes, check specs, check finishing), packaged DHL (2 day).*

    *Other manufacturer load levels for them.*

11. How do you acquire new customers? (Marketing, word-of-mouth, referrals, website, etc.?)

    *Display advertising online through Google network, word of mouth, partner directly with gyms, dry cleaners, country clubs (special promotions - discounts).*

12. Do you have customers all over the US, world, or it just local? If it is local what is your radius of operation?

    *90%+ USA.*
    *Canada/UK 8-9%.*

13. Could you provide a percentage breakdown of your sales? (i.e., 50% men's shirts, 5%

men's accessories, 25% men's suites, other products, etc.).

*100% MM Dress Shirts.*

**Ordering process**

11. Is all of your business through your website? If not, what percentage is not?

    *All done through website.*

12. How much time does a customer typically spend on your website before purchasing?

    *1 minute and 15 secs (average time for visiting website). Look up average time (10-15 minutes) to buy something.*

13. How many hits do you have on your site a month?

    *40K.*

14. What is the typical number of shirts per order from each customer?

    *1.7.*

15. What percentage are repeat customers?

    *30% (low 30s).*

16. What is the average purchase price for your men's custom dress shirts?

    *$92 (Range = $70-145).*

**Manufacturing**

18. How do you manufacture the product? Is any of the process automated?

    *2 yards for each shirt. 80-100 fabrics (long rolls) in stock. Fabric agencies approached Blank Label (better offer to hold his own stock). Small percentage of cash flow is inventory (50-150 yards). Some fabrics keep 3 rolls.*

19. Where is the manufacturing done?

    *Hand-cut fabrics,14-16 tailors (pattern making to button stitching), specialization of tasks, 2 pattern makers, specialization on collar, placket, and cuffs, body of shirt (putting together), embroidery (machine), one button guy stitching (foot peddle). They don't do digital cutting with larger MP cutting.*

20. Is your manufacturing process only for custom manufacture or is it part of a larger mass production manufacturing operation?

    *50-70% of manufacturing business (they also make IndoChino). Mostly custom.*

21. How large is the manufacturing operation in terms of size of facility?

*No information.*

22. How do you package your product? (How do you get it from the manufacturer? How do you deliver it to your customer)?

    *Packaging at QA office. Ships everyday. Multiple times a day between manufacturer and QA offices. One mile away (electric scooter). DHL M-Sat (shipping everyday)*

23. Could you estimate how many people are utilized in manufacturing?

    *14-16 people.*

24. How many shirts do you produce per day/week on average?

    *1080 per month.*

25. Could you describe how you generally handle fabric inventory? Do you keep a stock of limited quantities or do you order inventory as orders are made?

    *Western Chinese fabrics. 80% (little of Japan/Italy - shipped). Restock and buy (4-6 weeks), Fabric is a 3 hour drive from warehouse.*

26. Where does your fabric inventory come from? (i.e., where is it made).

    *Answered above.*

27. What percentage of your fabric selections are stable (i.e., sold frequently enough to reliably stock inventory) as opposed to fabrics that change frequently (like seasonal fabrics)?

    *6 – 9 months (stable fabrics), new white ones. Reorder every 4-6 weeks.*

28. Do you use push or pull strategies with respect to fabrics?

    *Both push and pull. Mostly pull.*

29. Do you aggregate orders before starting manufacturing?

    *Don't aggregate.*

30. If you have surplus inventory, what do you do with it (i.e., do you have discount sales)?

    *Surplus fabric inventory – try to sell back to manufacturer. Sell to fabric markets (not great connections). 400 yards are idle (try again later). Surplus shirt – Returns become donations (3 person customer service in St. Louis).*

31. Could you verify which participants of our study that needed alterations after the second fitting for our study? I believe one participant had to have his shirt remade after an error on the website?

    *N/A.*

32. How much time does it take for alterations after the second fitting?

*Free remake on 1st shirt (for any reason). Most of the time is fit. 15% of new customers do this. 2nd reason – didn't like the shirt, didn't get what I expected. 0.75-1% QA mistakes (sizing, spec issue, finishing issue – one button hole was not stitched through). Alterations too expensive in US, Alterations by customer too burdensome. Just make another one. Don't make any modifications.*

33. Would you be able to estimate shirts/operator per day?

    *50-60 shirts a day (whole day). 15 people.*

34. How much time on average does it take to make a single shirt?

    *No answer.*

35. How much waste do you estimate is created when making a shirt? (i.e., what percentage of fabric do you utilize in making one shirt, does this scale with multiple shirts of the same fabric)?

    *Collect excess to make fabric swatches.*

36. If you have any waste in manufacturing, what do you do with it? (i.e., recycle, trash, reuse creatively, etc.)?

    *Make fabric swatches and include them in orders for future purchases.*

**Shipping**

7. How do you ship shirts from the manufacturer (air, ship, truck, combination)? Could you tell us in detail?

   *DHL Individual packaging, drop ship. (used to ship to NC, redistribution, week faster).*

8. Do you ship them to your office then deliver/ship them to the customer? And to which location do you deliver?

   *Direct ship to customer.*

9. Could you give an overall breakdown of the time tables for shipping? (i.e., finished product to your office, office to customer for first fitting, etc., below is an example):

   *Best case*

   *6-8am local time (prints out new orders)*
   *Fabric and buttons are on inventory – cut and brought to manufacturer in the same day.*
   *Could be 1-3 days waiting at pattern maker.*
   *Shirt production 2 days*
   *Embroidery 1 extra*
   *Sent to office for packing (1 day for QA and Packaging).*

   *Best case is 1 week.*
   *2 day DHL shipping.*

10. Do you collect them in batches and then deliver to individual office locations? What is the minimum order quantity that makes sense for bundling?

    *No.*

**Final fitting and delivery**

10. What would you estimate to be the average total time from first meeting with customer to final delivery?

11. What percentage of your shirts require additional adjustments? For our study, which shirts needed to be altered?

    *15% of new customers.*
    *10% remakes (across the board).*

12. If there is an adjustment, where and how is that done? How long does this process take? How many people are involved in this process?

    *No adjustments – all remakes.*

13. What percentage of your final products cannot be repaired and a new one will need to be made?

    *None.*

14. Do you have any returns? And if so, what is the percentage? And if so, what is the policy for returns (i.e., credit towards another shirt)?

    *Answered earlier.*

15. If a shirt is not acceptable to the customer what are the major reasons? (i.e., can't be repaired, wrong fabric/pattern, etc.). Also, what percentage of returns cannot be fixed and require an entirely new shirt to be made? What do you do with the unsatisfactory shirt?

    *Answered earlier.*

16. On repeat customers do you also provide additional benefits?

    *Requests for special fabrics (don't do).*

**Conclusion**

5. Do you think there are other areas of your entire process where you could improve your environmental impact? (e.g., more environmental friendly materials, ordering process, more localized manufacturing, etc.)

    *Remakes lower. Making the sizing user experience on the site better. Local manufacturing (prohibitive 2.5X including shipping cost).*

6. What sorts of information or analyses would be useful for you as a company from our study? (e.g., Does the use rate of custom vs. standard shirts after sale matter?)

7. Are there any questions you have for the test subjects that you would like us to integrate into our end-of-study interview with our test subjects?

   *Would you switch from MP to MC? Why and why not? Or under what conditions?*

   *96% of customers is the first custom shirt. Demo is 25-44 even distribution. Brooks Brothers shift.*

**Exit Interviews from Study Participants**
All participants were interviewed at the end of the study to verify new their new MC and MP shirts as well as their shirt wearing behavior and overall thoughts on the study methodology.

**End-of-Shirt-Study Interview**

Name: FI-A
Office: Fidelity (FCAT)

Extending the study: *Yes*

**Instructions**
*This end-of-study interview will take approximately 15 minutes. Attached is a catalog of your shirts that provides a visual guide of your dress shirt wardrobe. Each shirt in your wardrobe has been assigned a number and type. Shirts can either be mass produced (off-the-rack) or mass customized. Most of participants only have one mass customized shirt, which is the new one you purchased earlier in the study. Custom shirts that were purchased online are called Made-to-Measure Shirts (MM). Custom shirts that were a result of working with a style consultant are called Custom Tailored Shirts (CT). Depending on your assignment you will either have a new MM or CT shirt in your wardrobe for this study. This catalog tabulates your dress shirt wardrobe as well as the number of days you wore each one. Please use this to help answer the questions below. Thinking of your answers before the meeting would help us to complete the interview within 15 minutes. Thanks!*

**Specific Behavior**
Your most worn shirt was shirt no. 6 (8 times) followed by shirt no. 3 (7 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*They all had the best fit and versatile (goes with many pants).*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*2.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*2 was his favorite.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*2.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1 or 2. Pricing is out of normal range.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*1.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Worn it like a normal shirt.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*Process was fun. Spent time designing the shirt (45-60 minutes). Quality not as good (button fell off).*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Workmanship was better on new MP offline shirt.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Expected to wear most often. Novelty factor goes up.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*No real effect.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

Controlled environment was fine.

*Visual feedback was fulfilling.*

**End-of-Shirt-Study Interview**

Name: FI-B
Office: Fidelity (FCAT)

Extending the study: *Yes*

**Specific Behavior**
Your most worn shirt was shirt no. 9 and 20 (6 times each) followed by shirt no. 13 (5 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*Shirt 9 was purple and it was a good color for matching pants. 20 was a recently bought shirt. Shirt 13 is a black/white checked shirt matches well with other pants (mostly black or brown).*

*Rides a bike to work, so weather is a factor.*

*Gives tours for work and crawls on the floor a lot, so nice shirts are worn less.*

*Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?*

*Shirt 6 was worn outside the office. Shirt 4, 2, 5 designed to go with a tie and suit.*

*Is your most worn shirt your most favorite shirt? If so, why or why not?*

*CT is new favorite. 20 is his favorite for work.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*3.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*6.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Yes, outside of work.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Many custom options remind him of the customization experience. Custom fit is tighter, but good. New standard shirt is too warm for summer however. Color is very important.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Answered already.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Wish he had 12 of the custom shirts, if they were cheaper. 50$ or so was the max price. Custom shirt is too nice. After wearing the shirt once he realized the shirt was definitely too nice to wear to work.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Once a day he gives a hip check.*

The study didn't really affect shirt-wearing behavior. Style was and is determining factor in decided which shirt to wear that day.

*How do you feel about being tracked in general (with fine grain detail of your whereabouts)?*

*OK.*

**Side Notes**
*Perception of customization has changed his perspective on quality of shirts.*

**End-of-Shirt-Study Interview**

Name: FI-C
Office: Fidelity (FCAT)

Extending the study: *YES*

**Specific Behavior**
Your most worn shirt was shirt no. 3 followed by shirt no. 17. Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*No. 3 was a short sleeve shirt. It was his favorite color (Green) and it matched the majority of his pants (mostly khakis). No. 17 is a neutral color, and requires no ironing and was very cheap $8.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*CT shirt was consciously worn for special occasions. No. 5 was also for special occasions. Presentations, meetings with new people, were main reasons for wearing.*

Would have typically worn shirt #5 for special occasions before the study, but button broke.

Is your most worn shirt your most favorite shirt? If so, why or why not?

*Probably. No. 16 is also a favorite because it is a crisp cotton with short sleeves, but a little more formal.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*No. 4 is the new MP shirt. Ordered online. It's very likeable and probably would have been worn more often but it was made of a heavy material than anticipated.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1. No need to iron.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*No. 11*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Yes, for special presentations, new people, etc.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*3. Too much ironing and maintenance. It is also a tight fit, so it took some time to get used to wearing it. Would have worn more if he had more pants that matched it.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Snug. Required ironing. More formal than most shirts in wardrobe.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Already answered.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you

have any reflections on this?

*Expected to wear it twice every three weeks. Thought he would wear it more often, but it was a little more formal than anticipating.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Subject was more subconscious in the beginning, but definitely aware that he was being tracked. The sight of the tower (before the LED lights went on) was a reminder. Also, some troubleshooting by him and Carl, made them more aware.*

*Wore the custom shirt for novelty and pleasing the researchers initially.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*Not a problem especially since it is not 24 hours.*

**End-of-Shirt-Study Interview**

Name: FI-D
Office: Fidelity (FCAT)

Extending the study: *Yes*

**Specific Behavior**
Your most worn shirt was shirt no. 1 and 14 (3 times each). Please tell us why you think these shirts were worn more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*FIFO shirt wearing process. Picks shirts based on audience.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*Not in this set.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*24, 28, 5 (most comfortable). Most favorite is defined by comfort and fit, then look and style.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*19.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1. Too expensive for him normally. He tries to get a $125 shirt for $60 or 70 or even 50.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*27.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Any occasion. Some are more for business.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2. Less well than the new MP.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Funny collar on the new custom shirt. New MP shirt was a better fit and better material. Difficult to find a $100 shirt.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*He expected them to be worn more often slightly.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Just aware. Some travel might have affected data.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

**Side Notes**
*Flexibility of tags not stiff enough.*
*Usually buys shirts from Nordstrom and Ike Behar.*
*I shirt tag fell out for shirt 24 (one of his favorites).*
*Shirt 27 was a remake (of the MM shirt). Second remake was made, but not tagged and not worn.*

*Purchases a new shirt maybe once a month, some from gifts.*

**End-of-Shirt-Study Interview**

Name: FI-F
Office: Fidelity (FCAT)

Extending the study: *Yes*

**Specific Behavior**
Your most worn shirt was shirt no. 12 (8 times) followed by shirt no. 10 and 11 (4 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*12 was the new MP shirt. Best fitted and light colored – nice for the summer 10 was the best fitting and comfortable.*

*Rides a scooter to work.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*13, 11.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*Yes.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*12.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*13 with French cuff.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Mostly.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*High expectations for CT shirt. New MP was worn more and the fit was better and more seasonal.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*CT was worn often after the new MP shirt.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*He expected to wear them less.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Awareness only.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*OK.*

**End-of-Shirt-Study Interview**

Name: FI-G
Office: Fidelity (FCAT)

Extending the study: *Yes*

**Specific Behavior**
Your most worn shirt was shirt no. 15 and 23 (6 times each) followed by shirt no. 10 (5 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*Shirt 15 was an inexpensive clearance, blue, disposable shirt that cost 16$. 23 was also a disposable shirt as well as shirt no. 10. Shirt 10 was a slim, blue, corporate "jump suit" shirt. Participant worries about high priced shirts with all of his accidents plus having kids around (i.e., he has a high slob factor).*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*The two new shirts which are 2-3X the normal price he pays.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*No, all his shirts are 'good enough'. Favorite doesn't equate to most worn.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*18. Offline MP – Hugo Boss shirt, also best fitting, bought from Neiman Marcus.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*16.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Presentations to executives and large groups.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2. But likely not buying from Blank Label again. It took 3 tries to get the right shirt.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Fabric was not as good as new MP shirt. Blank label shirt didn't fit as well as the hug boss. BL shirt is still leaps and bounds ahead of typically off the rack shirts he owns.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Special occasions only.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Expected MC shirts would be worn slightly more. Felt classier in the new shirts, but too worried about ruining the shirts.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target

price of new shirts)?

*Conscious of tracking. The study made him aware of doing laundry. Generally don't spend a lot of time thinking about his clothes. The new shirts made him think that good fitting shirts are worth more money. Don't know how much they're worth though. $100 too much.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*No problem.*

**Side notes:**

*Participant will continue tracking but would like to replace two shirts.*
*If he could buy MC shirts for 75$ he would. 100$ is out of range.*

**End-of-Shirt-Study Interview**

Name: FI-H
Office: Fidelity (FCAT)

Extended Study: *Yes, however 2 shirts were ruined by dry cleaner. He would like to replace them with 2 of the 4-5 new shirts he has in his possession.*

**Specific Behavior**
Your most worn shirt was shirt no. 7 (6 times) followed by shirt no. 13 (5 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*He is somewhat disorganized and grabs whatever shirts are available after they come from the dry cleaner. No real reason for these shirts to be worn other than he likes blue.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*No. All shirts worn with no special consideration.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*No favorite shirt.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*8.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*4. Based on measurements from shirt 8.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*No, not really.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*No real difference.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Normal rotation.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Expected MC shirts to be worn more often.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*No, not really.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*No, not really.*

**Extra Notes:**
*Shirt 2 and 10 were worn just one time each. They were cuff link shirts.*

**End-of-Shirt-Study Interview**

Name: FI-I
Office: Fidelity (FCAT)

Extending the study: *Yes*

**Specific Behavior**
Your most worn shirt was shirt no. 17 (6 times) followed by shirt no. 1, 5, and 19 (5 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*Shirt 17 was a new shirt, slim fit, and probably best shirt. Shirt 5 was a J.A. Banks shirt, no wrinkle. 1 had a nice spring with a yellow/blue pattern. Shirt 19 was a Brooks Brothers shirt. Many of his Tywitt shirts were too baggy. Only dry-cleans once a month, so wrinkling is a factor.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*Wears shirt 9 on special occasions and presentations.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*Yes.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*17.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*14.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*No, it was part of the normal rotation.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2 or 3.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*New MP was thicker, broad cloth. CT was thinner weave, more dressy, more see through. No emotional connection to the personalization process.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Normal rotation.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Does not like to wear shirts that other people have. Shirts 7, 8, 14, 17, and 20 are owned by other people in his office. Subject was expecting to wear MC shirt a normal amount.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Subject took extra care to get reading. Read distance a problem with placket location.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*No problem.*

**End-of-Shirt-Study Interview**

Name: FI-K
Office: Fidelity (FCAT)

Extending the study: *No*

**Specific Behavior**
Your most worn shirt was shirt no. 18 (5 times) followed by shirt no. 14 (4 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*Shirt 18 was a summer season shirt. Shirt 14 was a solid blue causal – trooper – shirt.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*30, 16 for presentations/meetings. 8, 19.*

*Participant wears pink on Friday (casual Fridays) as part of an office tradition in his old office.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*Favorite is not necessarily most worn. Over time, over wearing the shirt multiple times it becomes less 'favorite'. Favorite shirts for now are Pink Gingham 7 and 18.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*8. Thomas Pink.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*13. 30 was the mistake one. Meetings only with 13.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Already answered.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1 for both.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Minor differences in fit. Fabric was the same. Better fit on CT.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*No answer.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Expected MP shirts to be worn more. Typically for him, shirts worn the least are the oldest shirts.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Reader issues in the beginning only. $100 is more than usual spending for standard shirt. Usually pays $40-50 per standard shirt. Usually $80-90 for custom shirts.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*No problem.*

**Side Notes**

*Learned about custom shirts in B. School*
*MP shirts his average price was 30-40$.*
*CT shirts his average prices was 80-90$.*

**End-of-Shirt-Study Interview**

Name: FI-L
Office: Fidelity (FCAT)

Extending the study: *Yes*

**Specific Behavior**
Your most worn shirt was shirt no. 24 (10 times) followed by shirt no. 26 and 27 (6 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*24 was a 24$ MP shirt. Shirt 27 was a convenient shirt. Participant chooses shirts based on availability. Dry cleaning turn around is long and he sends many shirts to the cleaner, so he picks what is available. Participant is also in a rush often to catch the bus or usher children to school, thus low maintenance shirts (without cuff links) are worn more often.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*None in particular. Only shirts that work for ties and a suit will be used occasionally for special meetings.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*Favorite shirt is not in this study. His favorite shirts are floral, textured, and with French cuffs.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*19 with a French cuff (Takumi).*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*18. It was in bought and in hand first.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Normal wearing.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2 or 3. Shirt was a little tight. Harder to roll up sleeves without wrinkling.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Fit was similar, 9Tailors shirt was tighter, not as comfortable.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*No special reasons. It was worn normally. Gets very wrinkled every time its worn however.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*No preconceived notion of which shirt would be worn more.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Just aware only. Tracking did not affect choices though.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*He is against tracking in general, does not have data in the cloud or sync his phone.*

*Cheated 2 times with other shirts. Wore the Takumi shirt for a trip.*

**End-of-Shirt-Study Interview**

Name: TR-A
Office: MIT Technology Review

Extended Study: *No.*

**Specific Behavior**
Your most worn shirt was shirt no. 1 (10 times) followed by shirt no. 4 (9 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*Shirt no. 1 fit well and was new. Shirt no. 4 was a color he liked. Most of the shirts not worn were*

*older. Shirt no. 3 sleeve was broken.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*Yes, it was definitely higher quality and therefore used on more special meetings.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*Second most worn shirt was his favorite. No. 2 (CT) was also well liked.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*1.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*2.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Yes, there was a tendency to wear them for special occasions.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*CT style was very good. New MP had some compromises. It had a different collar style, and sleeve was high on shoulder, less maneuverable.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Already answered.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Subject was expecting that shirts would be worn less.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Target price was difficult to achieve. Most shirts were either in the $50-60 or +$200 range.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*No problem with tracking.*

**End-of-Shirt-Study Interview**

Name: TR-B
Office: MIT Technology Review

Extended Study: Yes.

**Specific Behavior**
Your most worn shirt was shirt no. 3 (10 times) followed by shirt no. 2, your custom shirt at 9 times. Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*#3 is wrinkle-free. #2 custom shirt, wrinkle-free also. If it didn't require dry-cleaning he would have worn it more often.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*No.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*Favorite is #2. Light weight, color and pattern are. Drawback is dry-cleaning 1/5 ranking.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*3.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2. Purchased at store before custom shirt arrived.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*2. Favorite shirt.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Normal rotation.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Difference mainly in quality of fabric – really high in custom. Off the rack lower in quality. Collar isn't as stiff and doesn't lay well.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Already answered.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Thought the custom shirts would be worn more often than the study found given the quality. Likes to wear the high quality shirts more often.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*The study didn't affect behavior in general. Didn't notice the technology involved in study.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*Being tracked: totally fine. No issues.*

**Extra Notes**
*Perception of higher quality was raised because of study.*

**End-of-Shirt-Study Interview**

Name: TR-C
Office: MIT Technology Review

Extended Study: Yes.

**Specific Behavior**
Your most worn shirt was shirt no. 2, 5, 15, 17, and 25 (3 times each). Please tell us why you think these shirts were worn more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*#2 like the style and comfort, #5 like the color and is comfortable. #17 is comfortable. Looser fit, feel of the fabric in general. These five shirts still look good, others in the study are becoming worn out. Color and comfort are key factors for him.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*None.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*No distinct favorite shirt.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*Accidently omitted from the study. Joesph Obboud, grey dress shirt, with black buttons.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*No answer.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.
*1.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*Worn it normally. Less frequent because of dry cleaning.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*Custom shirt 2/5.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Because of dry cleaning and tighter fit was worn less often. Dry clean only, not home wash.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Already answered.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Perception of wearing custom with the amount of time and effort involved, he would wear it less often.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Feeling guilty about not wearing the custom shirt, but overall, didn't really change behavior. MM shirt took less effort than CT. He felt more time and effort equals less worn.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*Didn't really think about it. When he does think about it, doesn't like the idea of it all.*

**Extra Notes**

**End-of-Shirt-Study Interview**

Name: TR-C
Office: MIT Technology Review

Extended Study – *Only for a little while.*

**Specific Behavior**
Your most worn shirt was shirt no. 4 (11 times) followed by shirt no. 2 (9 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*Both No.4 and No.2 are non-iron and I like the patterns. I'm more likely to wear non-iron shirts for the obvious reason that I don't have to bother getting out the ironing board in order to wear them. I'm also more like to wear them a few times before throwing them in the wash. I think these two patterns are smart but also understated.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*No.12. This one is just a bit too "jazzy" for work, so I usually reserve it for a night out.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*No. I'm not all that fond of the colors. My wife refers to it as the "my little pony" shirt because it combines pink and purple", which doesn't endear it to me. I think No.2 is my favorite.*

**The New Standard Shirt**

Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*No.5*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*4.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*No.13*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*No. Although I wore it on a few special occasions, including a couple of weddings, I also wore it on regular workdays.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*5.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*The fit was better than my other shirts, and the material was very nice. I would've preferred it to non-iron though, because I'm a bit lazy.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*I wore it slightly less than my other dress shirts – probably because it seemed more special.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*I can see why people might expect that to be the case -- because they'd expect such a shirt to be more expensive. So perhaps having the shirt supplied to them made them less cost-conscious. Or perhaps learning that the custom shirt was only around $125 made them feel they could wear it more often.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*I honesty don't think that any of these factors changed my shirt purchasing behavior very much. That we were told not to buy any new shirts was probably the biggest factor. Knowing that we were being tracked might've encouraged me to wear a wider variety of shirts a bit – but only at the beginning of the study.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*I don't feel particularly uncomfortable, but I am also conscious that tracking is increasingly common and that raises important societal questions regarding privacy and civil liberties.*

**End-of-Shirt-Study Interview**

Name: TR-E
Office: MIT Technology Review

Extended Study: *No.*

**Specific Behavior**
Your most worn shirt was shirt no. 36 (4 times) followed by shirt no. 1, 19, 24, and 37 (3 times each). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*#36 worn most. Non iron fabric convenient for wearing multiple times – no need to dry clean. Summer weather you don't jackets, so the shirts must be more bold on their own – style thing. Checker or grid patterns. Some shirts are more light weight – better for hot weather.*

*Is most worn most favorite? Wouldn't say that. How would you define? Most favorite shirt is #24 – shirt is very nice fabric – silky feels good to wear.*

*One shirt ripped in the elbow #38 – during the study.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*Is your most worn shirt your most favorite shirt? If so, why or why not?*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*New standard shirt is not in the photos. He went to multiple locations to try to find this new shirt, ultimately had to find a cheaper shirt that was $65, but it was on sale for $35. Most shirts at $100 were for the disco.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*3/5 for ranking.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

6.

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*No answer.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2/5 for custom shirt.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Key differences – nicer material in custom shirt. Cut of collar is better, buttons are special color. Custom shirt outcome was very good, but too expensive for him normally.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Wore the custom shirt 2 times. Definitely a little fancier. Felt hesitation in wearing. Wore with jacket and suit. A new 'level' of shirt. Jacket and suit played a factor in which shirts he wore especially at the start of the day if it was a hot day.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Expectation on wearing – slight line of resistance to wearing the custom shirt. Would wear it slightly less because it's a nice shirt.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*The tag was annoying – scratchy. Wore other shirts in many cases when too hot. Bias against shirts with tags.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*Didn't mind being tracked – kind of fun.*

**Extra Notes**
*Online customization process was fun. But offline process was hell. Hard time finding $100 dress shirts. Most shirts are hand-me downs, so shopping at a store was not typical behavior.*

**End-of-Shirt-Study Interview**

Name: TR-F

Office: MIT Technology Review

Extended Study: *Yes.*

**Specific Behavior**
Your most worn shirt was shirt no. 6 and 13 (4 times each) followed by shirt no. 9, 10, 15,16, 20 (3 times each). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*FIFO batch system. Some shirts were older and didn't fit.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*Not in this study.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*No favorites.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*10. More colorful with brighter blue and nice pattern.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*1.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*3.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc.).

*May 10th he used it for a special meeting. Shirt was too nice for normal use.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*No answer.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*Higher material quality, monogram for custom shirt. Better feeling fabric. Cool feeling from the extra personalization from MC shirt.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Already answered.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Felt guilty not wearing the shirts during the study. It was too hot for long sleeve for some periods.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*No problems.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*Feel about being tracked? He kind of enjoyed it – loved this kind of stuff. Felt safe in the study – he knew us.*

**Extra Notes**

*Board meeting: MC shirt felt REAL GOOD!*

**End-of-Shirt-Study Interview**

Name: TR-G
Office: MIT Technology Review

Extended Study: *Yes.*

**Specific Behavior**
Your most worn shirt was shirt no. 11 (11 times) followed by shirt no. 14 (10 times). Please tell us why you think these shirts were worn so much more often than your other shirts. (e.g., perfect fit, feels comfortable, favorite color/pattern, easy to match, other reasons).

*#11 and 10 are same brand and go well with many other clothing. More inclined to wear darker, blue shirts.*

Can you identify shirts, using the catalog, in your wardrobe that you only wear for special occasions?

*Special occasion shirts – 'nicer' shirts.*

Is your most worn shirt your most favorite shirt? If so, why or why not?

*#14 is most favorite and second most worn. Liked the pattern. Fits well, versatile and likes the pattern. 2/5 ranking.*

**The New Standard Shirt**
Please identify which shirt is your new standard off-the-rack dress shirt using the attached catalog document.

*#4 is new standard shirt and is probably the most special. New standard shirt from banana republic.*

How happy were you with your new standard off-the-rack dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2.*

**The New Custom Shirt**
Verify your new custom dress shirt using the same document.

*#12 is new custom shirt. Second nicest shirt after off the rack. Custom shirt felt a little more casual – had a pocket. Went with jeans.*

Did you use the custom shirt for special occasions only? (e.g., important meetings, etc).

*No answer.*

How happy were you with your new custom dress shirt after this study (1= most satisfied, 5= least satisfied)?

*2/5 ranking.*

What was the key difference between your new custom and standard dress shirt? Were there any major benefits for one or the other?

*MC was more casual and had a pocket. Went with jeans better.*

Did you wear your custom shirt frequently or infrequently? What was the reason? (e.g., shirt was only for special occasions, it fit really well, other factors).

*Average amount.*

**General Trends**
We found from surveys that most people expected to wear custom shirts less often, however, the study shows that people generally wear them the same amount as mass produced shirts. Do you have any reflections on this?

*Top 2 shirts he tried in the store. Custom shirt worn 6 times had a slimmer fit. It grew on him and had a fancy button.*

**Methodology**
What aspect(s) of this experiment most dramatically changed your shirt purchasing and wearing behavior (i.e., coupon, RFID tower presence, length of the study, RFID tagging, surveys, target price of new shirts)?

*Aspects of experiment: little more conscious of wearing variety of shirts. Tried to vary his shirt wearing.*

How do you feel about being tracked in general (with fine grain detail of your whereabouts)?

*Feeling about being tracked. Didn't really care – didn't think about it.*

**Extra Notes**

# Appendix C

**Quantitative Survey Results**
Results gathered by SurveyMonkey from the 276 respondents that participated in Quantitative Survey (Chapter 4) are below:

Quantitative Survey of Patterns of Shirt Usage and Ownership (276 Respondents)

**1. What is your gender?**

| | Response Percent | Response Count |
|---|---|---|
| **Male** | **100.0%** | **267** |
| Female | 0.0% | 0 |
| | **answered question** | **267** |
| | **skipped question** | **0** |

**2. What is your age?**

| | Response Percent | Response Count |
|---|---|---|
| 18-24 | 3.4% | 9 |
| 25-29 | 12.4% | 33 |
| 30-39 | 19.1% | 51 |
| 40-49 | 22.1% | 59 |
| **50-59** | **30.3%** | **81** |
| 60-69 | 12.7% | 34 |
| 70-79 | 0.0% | 0 |
| 80+ | 0.0% | 0 |
| | **answered question** | **267** |
| | **skipped question** | **0** |

***Page 1.*** Quantitative Survey

**3. Please enter your ZIP CODE**

| | Response Count |
|---|---|
| | 267 |
| answered question | 267 |
| skipped question | 0 |

**4. How many dress shirts* do you own for wearing to work?**

| | Response Percent | Response Count |
|---|---|---|
| 0 | 7.9% | 21 |
| 1-9 | 33.5% | 89 |
| 10-19 | 35.7% | 95 |
| 20-29 | 16.2% | 43 |
| 30-49 | 4.9% | 13 |
| 50+ | 1.9% | 5 |
| answered question | | 266 |
| skipped question | | 1 |

***Page 2.*** Quantitative Survey

**5. How often do you wear a dress shirt to work? (average over the last year)**

| | Response Percent | Response Count |
|---|---|---|
| 1-10 days per YEAR | 13.1% | 32 |
| 1-3 days per MONTH | 14.8% | 36 |
| 1-3 days per WEEK | 26.6% | 65 |
| **4-5 days per WEEK** | **45.5%** | **111** |
| **answered question** | | **244** |
| **skipped question** | | **23** |

**6. Of all your dress shirts for work, how many do you wear frequently over an average 1 year period?**

| | Response Percent | Response Count |
|---|---|---|
| I wear LESS THAN HALF of my shirts | 14.8% | 36 |
| I wear ABOUT HALF of my shirts | 18.4% | 45 |
| I wear MORE THAN HALF of my shirts | 22.5% | 55 |
| **I wear ALMOST ALL of my shirts** | **44.3%** | **108** |
| **answered question** | | **244** |
| **skipped question** | | **23** |

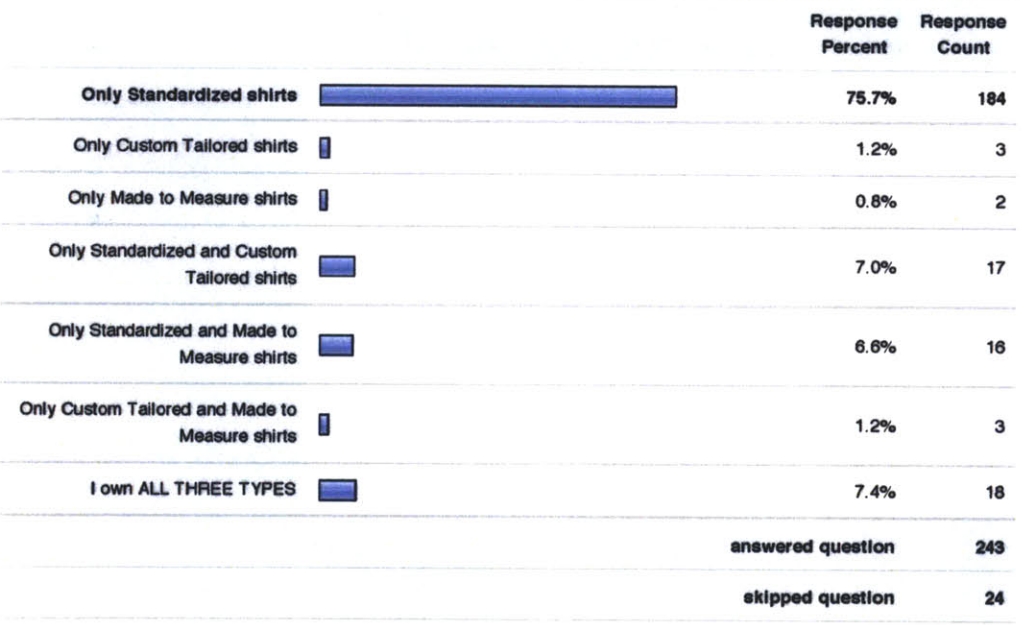
***Page 3.*** Quantitative Survey

**7. Please select the reasons why you don't wear some or many of the dress shirts in your wardrobe. (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Do not fit anymore | 38.5% | 94 |
| They've become worn out | 39.3% | 96 |
| Forgot about them | 19.3% | 47 |
| Out of style | 26.2% | 64 |
| Was a gift that I never really liked | 16.0% | 39 |
| Other (please specify) | 23.4% | 57 |
| answered question | | 244 |
| skipped question | | 23 |

***Page 4.*** Quantitative Survey

**8. Please select the option that best describes your current dress shirt wardrobe. (see below for dress shirt type definitions)**



| | Response Percent | Response Count |
|---|---|---|
| Only Standardized shirts | 75.7% | 184 |
| Only Custom Tailored shirts | 1.2% | 3 |
| Only Made to Measure shirts | 0.8% | 2 |
| Only Standardized and Custom Tailored shirts | 7.0% | 17 |
| Only Standardized and Made to Measure shirts | 6.6% | 16 |
| Only Custom Tailored and Made to Measure shirts | 1.2% | 3 |
| I own ALL THREE TYPES | 7.4% | 18 |
| answered question | | 243 |
| skipped question | | 24 |

***Page 5.*** Quantitative Survey

**9. Are there any specific reasons you don't own a Custom Tailored dress shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| **They are typically too expensive** | **73.6%** | **134** |
| I usually don't have the time work with a tailor | 26.9% | 49 |
| There are no tailors conveniently located near me | 20.3% | 37 |
| I prefer wearing brand name dress shirts that I'm familiar with | 17.6% | 32 |
| I would only purchase a custom tailored shirt if I was also buying a custom tailored suit | 12.1% | 22 |
| Other | 11.5% | 21 |
| | **answered question** | **182** |
| | **skipped question** | **85** |

***Page 6.*** Quantitative Survey

**10. Are there any specific reasons you don't own a Made to Measure dress shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 45.1% | 82 |
| I usually don't have the time to configure a shirt online | 21.4% | 39 |
| I've never heard of made to measure dress shirts | 41.2% | 75 |
| Most return policies are too inflexible for me | 3.3% | 6 |
| I would rather choose between pre-made shirts than create a new shirt by myself | 30.8% | 56 |
| Other | 10.4% | 19 |
| answered question | | 182 |
| skipped question | | 85 |

***Page 7.*** Quantitative Survey

**11. Please rank the following characteristics in order of importance when purchasing a dress shirt. 1 = most important; 5 = least important**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | **38.4% (68)** | 33.9% (60) | 13.6% (24) | 9.6% (17) | 4.5% (8) | 1.00 | 177 |
| aesthetics | 13.6% (24) | 14.1% (25) | 17.5% (31) | **34.5% (61)** | 20.3% (36) | 1.00 | 177 |
| fabric / construction quality | 10.7% (19) | 19.2% (34) | **35.6% (63)** | 26.0% (46) | 8.5% (15) | 1.00 | 177 |
| brand familiarity | 9.6% (17) | 8.5% (15) | 8.5% (15) | 15.8% (28) | **57.6% (102)** | 1.00 | 177 |
| price / value | **27.7% (49)** | 24.3% (43) | 24.9% (44) | 14.1% (25) | 9.0% (16) | 1.00 | 177 |
| | | | | | **answered question** | | **177** |
| | | | | | **skipped question** | | **90** |

**12. What is the estimated price that you typically pay for a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 11.3% | 20 |
| **$20-$39** | **55.9%** | **99** |
| $40-$59 | 21.5% | 38 |
| $60-$99 | 10.2% | 18 |
| $100-$199 | 0.6% | 1 |
| Greater than $200 | 0.6% | 1 |
| | **answered question** | **177** |
| | **skipped question** | **90** |

***Page 8.*** Quantitative Survey

**13. Have you ever purchased a dress shirt through an online retailer? (through a web site)**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 33.3% | 59 |
| No | 66.7% | 118 |
| answered question | | 177 |
| skipped question | | 90 |

**14. From where do you most commonly purchase your dress shirts? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Retail store in mall | 67.8% | 40 |
| Boutique designer store (not including stores located in malls) | 16.9% | 10 |
| Secondary market/discount store | 23.7% | 14 |
| Online retailer | 39.0% | 23 |
| Other (please specify) | 6.8% | 4 |
| answered question | | 59 |
| skipped question | | 208 |

***Page 9.*** Quantitative Survey

**15. When purchasing a dress shirt from a physical retail store, how do you typically travel to that store?**

| | Response Percent | Response Count |
|---|---|---|
| **Personal automobile** | **93.2%** | **55** |
| Public transit | 3.4% | 2 |
| Walk | 1.7% | 1 |
| Bike | 1.7% | 1 |
| Shared vehicle (Zipcar, Car2Go, etc.) | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **59** |
| | **skipped question** | **208** |

**16. What is the average distance you travel to purchase a dress shirt from a physical retail store?**

| | Response Percent | Response Count |
|---|---|---|
| Less than 1 mile | 0.0% | 0 |
| 1 - 3 miles | 20.3% | 12 |
| 3 - 5 miles | 22.0% | 13 |
| 5 - 10 miles | 22.0% | 13 |
| **Greater than 10 miles** | **35.6%** | **21** |
| | **answered question** | **59** |
| | **skipped question** | **208** |

***Page 10.*** Quantitative Survey

**17. When purchasing a dress shirt from an online retailer, how do you typically have the shirt delivered to you?**

| | Response Percent | Response Count |
|---|---|---|
| Standard Ground Shipping | 91.5% | 54 |
| 2 Day shipping | 3.4% | 2 |
| Overnight Shipping | 0.0% | 0 |
| Same Day Shipping | 0.0% | 0 |
| It is first delivered to a store near me, then I go pick it up | 3.4% | 2 |
| Other (please specify) | 1.7% | 1 |
| answered question | | 59 |
| skipped question | | 208 |

**18. Please rank the following characteristics in order of importance when purchasing a shirt at a physical store. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Good selection at store | **46.6% (27)** | 24.1% (14) | 13.8% (8) | 8.6% (5) | 6.9% (4) | 58 |
| Knowledgeable sales staff at store | 6.9% (4) | 8.6% (5) | 8.6% (5) | 32.8% (19) | **43.1% (25)** | 58 |
| Efficiency and predictability of purchasing process | 12.1% (7) | 13.8% (8) | 25.9% (15) | **27.6% (16)** | 20.7% (12) | 58 |
| Familiar brands available at store | 22.4% (13) | **24.1% (14)** | **24.1% (14)** | 15.5% (9) | 13.8% (8) | 58 |
| Convenient location of store | 12.1% (7) | **29.3% (17)** | 27.6% (16) | 15.5% (9) | 15.5% (9) | 58 |
| answered question | | | | | | 58 |
| skipped question | | | | | | 209 |

***Page 11.*** Quantitative Survey

**19. Please rank the following characteristics in order of importance when purchasing a shirt at a physical store. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Good selection at store | **40.5% (47)** | 30.2% (35) | 16.4% (19) | 6.9% (8) | 6.0% (7) | 116 |
| Knowledgeable sales staff at store | 12.1% (14) | 7.8% (9) | 12.9% (15) | 18.1% (21) | **49.1% (57)** | 116 |
| Efficiency and predictability of purchasing process | 15.5% (18) | 12.9% (15) | 22.4% (26) | **35.3% (41)** | 13.8% (16) | 116 |
| Familiar brands available at store | 12.1% (14) | **25.9% (30)** | 20.7% (24) | 22.4% (26) | 19.0% (22) | 116 |
| Convenient location of store | 19.8% (23) | 23.3% (27) | **27.6% (32)** | 17.2% (20) | 12.1% (14) | 116 |
| | | | | | **answered question** | **116** |
| | | | | | **skipped question** | **151** |

**20. From where do you most commonly purchase your dress shirts? (select up to 2 choices)**

| | | Response Percent | Response Count |
|---|---|---|---|
| **Retail store in mall** |  | **76.3%** | **90** |
| Boutique designer store (not including stores located in malls) |  | 14.4% | 17 |
| Secondary market/discount store |  | 34.7% | 41 |
| Other (please specify) |  | 5.1% | 6 |
| | | **answered question** | **118** |
| | | **skipped question** | **149** |

***Page 12.*** Quantitative Survey

**21. How do you typically travel to a store to purchase a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Personal automobile | 94.1% | 111 |
| Public transit | 3.4% | 4 |
| Walk | 2.5% | 3 |
| Bicycle | 0.0% | 0 |
| Shared vehicle (Zipcar, Car2Go, etc.) | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 118 |
| skipped question | | 149 |

**22. What is the average distance you travel to purchase a dress shirt from a physical retail store?**

| | Response Percent | Response Count |
|---|---|---|
| Less than 1 mile | 3.4% | 4 |
| 1 - 3 miles | 11.9% | 14 |
| 3 - 5 miles | 25.4% | 30 |
| 5 - 10 miles | 38.1% | 45 |
| Greater than 10 miles | 21.2% | 25 |
| answered question | | 118 |
| skipped question | | 149 |

***Page 13.*** Quantitative Survey

**23. Are there any specific reasons why you don't own Standardized Dress shirts? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They typically don't fit me very well | 33.3% | 1 |
| I don't like the style of most brands available | 0.0% | 0 |
| I don't like shopping at retail stores for dress shirts | 33.3% | 1 |
| I would rather create a new shirt than choose between pre-made shirts | 0.0% | 0 |
| Quality is typically poor | 0.0% | 0 |
| Other | 33.3% | 1 |
| answered question | | 3 |
| skipped question | | 264 |

***Page 14.*** Quantitative Survey

**24. Are there any specific reasons you don't own Made to Measure dress shirts? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 0.0% | 0 |
| I usually don't have the time to configure a shirt online | 33.3% | 1 |
| I've never heard of made to measure shirts | 0.0% | 0 |
| Most return policies are too inflexible for me | 0.0% | 0 |
| Other | 66.7% | 2 |
| answered question | | 3 |
| skipped question | | 264 |

**25. What is the estimated price that you typically pay for a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20-$39 | 33.3% | 1 |
| $40-$59 | 0.0% | 0 |
| $60-$99 | 33.3% | 1 |
| $100-$199 | 33.3% | 1 |
| Greater than $200 | 0.0% | 0 |
| answered question | | 3 |
| skipped question | | 264 |

***Page 15.*** Quantitative Survey

**26. Please rank the following characteristics in order of importance when purchasing a Custom Tailored Dress Shirt. 1= most important; 5 = least important**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | **66.7% (2)** | 0.0% (0) | 0.0% (0) | 33.3% (1) | 0.0% (0) | 1.00 | 3 |
| aesthetics | 33.3% (1) | 0.0% (0) | 0.0% (0) | **66.7% (2)** | 0.0% (0) | 1.00 | 3 |
| fabric / construction quality | 0.0% (0) | **66.7% (2)** | 0.0% (0) | 0.0% (0) | 33.3% (1) | 1.00 | 3 |
| brand familiarity | 0.0% (0) | 0.0% (0) | **66.7% (2)** | 0.0% (0) | 33.3% (1) | 1.00 | 3 |
| price / value | 0.0% (0) | **33.3% (1)** | **33.3% (1)** | 0.0% (0) | **33.3% (1)** | 1.00 | 3 |
| | | | | | **answered question** | | **3** |
| | | | | | **skipped question** | | **264** |

**27. How do you typically travel to a tailor to purchase a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Personal automobile | 0.0% | 0 |
| Public transit | 0.0% | 0 |
| Walk | 0.0% | 0 |
| Bicycle | 0.0% | 0 |
| Shared vehicle (Zipcar, Car2Go, etc.) | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| **answered question** | | **0** |
| **skipped question** | | **267** |

***Page 16.*** Quantitative Survey

**28. What is the average distance you travel to purchase a dress shirt from a tailor?**

| | Response Percent | Response Count |
|---|---|---|
| Less than 1 mile | 0.0% | 0 |
| 1 - 3 miles | 0.0% | 0 |
| 3 - 5 miles | 0.0% | 0 |
| 5 - 10 miles | 0.0% | 0 |
| Greater than 10 miles | 0.0% | 0 |
| answered question | | 0 |
| skipped question | | 267 |

***Page 17.*** Quantitative Survey

**29. When working with tailor to create your shirt, what feature(s) do you typically like to make decisions on? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Fabric material (cotton, silk, synthetic, etc.) | 33.3% | 1 |
| Size/dimension | 66.7% | 2 |
| Fabric pattern/color | 0.0% | 0 |
| Collar style | 0.0% | 0 |
| Monogram | 0.0% | 0 |
| Cuff Style | 0.0% | 0 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 0.0% | 0 |
| Buttons | 0.0% | 0 |
| None | 33.3% | 1 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 3 |
| skipped question | | 264 |

***Page 18.*** Quantitative Survey

**30. Please rank the following reasons in order of importance when working with a tailor to create your dress shirts. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| One-on-one relationship with my tailor | 0.0% (0) | 0.0% (0) | 0.0% (0) | **66.7% (2)** | 33.3% (1) | 3 |
| Ability to touch and feel fabric | 0.0% (0) | **66.7% (2)** | 0.0% (0) | 33.3% (1) | 0.0% (0) | 3 |
| Ability to purchase other personalized/matching clothing items at same time and/or location | 0.0% (0) | 33.3% (1) | **66.7% (2)** | 0.0% (0) | 0.0% (0) | 3 |
| Relevant wardrobe advice | 0.0% (0) | 0.0% (0) | 33.3% (1) | 0.0% (0) | **66.7% (2)** | 3 |
| Guaranteed to be exactly what I want | **100.0% (3)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 3 |
| | | | | | **answered question** | **3** |
| | | | | | **skipped question** | **264** |

***Page 19.*** Quantitative Survey

**31. Are there any specific reasons why you don't own Standardized Dress shirts? (select all that apply)**

| | | Response Percent | Response Count |
|---|---|---|---|
| **They typically don't fit me very well** |  | **50.0%** | **1** |
| I don't like the style of most brands available | | 0.0% | 0 |
| I don't like shopping at retail stores for dress shirts | | 0.0% | 0 |
| I would rather create a new shirt than choose between pre-made shirts | | 0.0% | 0 |
| **Quality is typically poor** |  | **50.0%** | **1** |
| Other | | 0.0% | 0 |
| | | **answered question** | **2** |
| | | **skipped question** | **265** |

***Page 20.*** Quantitative Survey

**32. Are there any specific reasons you don't own Custom Tailored dress shirts? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 50.0% | 1 |
| I usually don't have the time work with a tailor | 0.0% | 0 |
| There are no tailors conveniently located near me | 0.0% | 0 |
| I prefer wearing brand name dress shirts that I'm familiar with | 50.0% | 1 |
| I would only purchase a custom tailored shirt if I was also buying a custom tailored suit | 0.0% | 0 |
| Other | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 265 |

**33. What is the estimated price that you typically pay for a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20-$39 | 50.0% | 1 |
| $40-$59 | 50.0% | 1 |
| $60-$99 | 0.0% | 0 |
| $100-$199 | 0.0% | 0 |
| greater than $200 | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 265 |

***Page 21.*** Quantitative Survey

**34. When purchasing a dress shirt from an online retailer, how do you typically have the shirt delivered to you?**

| | Response Percent | Response Count |
|---|---|---|
| Standard Ground Shipping | 0.0% | 0 |
| 2 Day Shipping | 0.0% | 0 |
| **Overnight Shipping** | **50.0%** | 1 |
| Same Day Shipping | 0.0% | 0 |
| It is first delivered to a store near me, then I go pick it up | 0.0% | 0 |
| **Other (please specify)** | **50.0%** | 1 |
| | **answered question** | **2** |
| | **skipped question** | **265** |

**35. Please rank the following characteristics in order of importance when purchasing a Made to Measure Dress Shirt. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | 0.0% (0) | **50.0% (1)** | **50.0% (1)** | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| aesthetics | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | **100.0% (2)** | 1.00 | 2 |
| fabric / construction quality | 0.0% (0) | **50.0% (1)** | **50.0% (1)** | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| brand familiarity | **100.0% (2)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| price / value | 0.0% (0) | 0.0% (0) | 0.0% (0) | **100.0% (2)** | 0.0% (0) | 1.00 | 2 |
| | | | | | **answered question** | | **2** |
| | | | | | **skipped question** | | **265** |

***Page 22.*** Quantitative Survey

**36. When purchasing a Made to Measure dress shirt, what feature(s) do you typically customize? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Fabric material (cotton, silk, synthetic, etc.) | 0.0% | 0 |
| Size/dimension | 50.0% | 1 |
| Fabric pattern/color | 0.0% | 0 |
| Collar style | 0.0% | 0 |
| Monogram | 0.0% | 0 |
| Cuff Style | 50.0% | 1 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 0.0% | 0 |
| Buttons | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 2 |
| | skipped question | 265 |

***Page 23.*** Quantitative Survey

**37. Please rank the following reasons in order of importance for purchasing a Made to Measure Dress Shirt. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Ability to create a uniquely styled shirt | 0.0% (0) | 0.0% (0) | **50.0% (1)** | **50.0% (1)** | 0.0% (0) | 2 |
| Ease of online shopping | 0.0% (0) | 0.0% (0) | 0.0% (0) | **50.0% (1)** | **50.0% (1)** | 2 |
| Shirts are delivered directly to me | **50.0% (1)** | 0.0% (0) | **50.0% (1)** | 0.0% (0) | 0.0% (0) | 2 |
| Getting a shirt that I know will fit me | **50.0% (1)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | **50.0% (1)** | 2 |
| Less expensive than custom-tailored dress shirts | 0.0% (0) | **100.0% (2)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 2 |
| | | | | | **answered question** | **2** |
| | | | | | **skipped question** | **265** |

**38. Of your total number of dress shirts (your answer was: [Q4]), how many are of the followin**

**Standardized Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 |
|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 0.0% (0) | 0.0% (0) | **40.0% (6)** | 20.0% (3) | 26.7% (4) |

**Custom Tailored Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 |
|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 0.0% (0) | 33.3% (5) | **40.0% (6)** | 26.7% (4) | 0.0% (0) |

**answer**

**skipp**

***Page 24.*** Quantitative Survey

**39. Of your total number of dress shirts, how often do you wear the following types?**

**Standardized Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 day |
|---|---|---|---|---|
| Average over the last year | 6.7% (1) | 0.0% (0) | 66.7% (10) | 26 |

**Custom Tailored Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 day |
|---|---|---|---|---|
| Average over the last year | 20.0% (3) | 40.0% (6) | 40.0% (6) | 0 |

answ

skip

**40. What is the estimated price that you typically pay for a dress shirt?**

**Standardized Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 |
|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 40.0% (6) | 40.0% (6) | 13.3% (2) | 6.7% (1) |

**Custom Tailored Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 |
|---|---|---|---|---|---|
| Average price for each shirt type: | 6.7% (1) | 0.0% (0) | 26.7% (4) | 33.3% (5) | 33.3% (5) |

answ

skip

***Page 25.*** Quantitative Survey

**41. Please rank the following characteristics in order of importance when purchasing a dress shirt. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | **40.0% (6)** | 33.3% (5) | 26.7% (4) | 0.0% (0) | 0.0% (0) | 1.00 | 15 |
| aesthetics | 13.3% (2) | **33.3% (5)** | 13.3% (2) | 20.0% (3) | 20.0% (3) | 1.00 | 15 |
| fabric / construction quality | 26.7% (4) | 13.3% (2) | 20.0% (3) | **33.3% (5)** | 6.7% (1) | 1.00 | 15 |
| brand familiarity | 13.3% (2) | 6.7% (1) | 6.7% (1) | 13.3% (2) | **60.0% (9)** | 1.00 | 15 |
| price / value | 6.7% (1) | 13.3% (2) | **33.3% (5)** | **33.3% (5)** | 13.3% (2) | 1.00 | 15 |
| | | | | | **answered question** | | **15** |
| | | | | | **skipped question** | | **252** |

***Page 26.*** Quantitative Survey

**42. When working with tailor to create your custom tailored dress shirt, what feature(s) do you typically like to make the decisions on? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Fabric material (cotton, silk, synthetic, etc.) | 60.0% | 9 |
| Size/dimension | 66.7% | 10 |
| Fabric pattern/color | 60.0% | 9 |
| Collar style | 53.3% | 8 |
| Monogram | 13.3% | 2 |
| Cuff Style | 33.3% | 5 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 13.3% | 2 |
| Buttons | 20.0% | 3 |
| Other (please specify) | 13.3% | 2 |
| answered question | | 15 |
| skipped question | | 252 |

**43. Which dress shirts tend to be your favorites? (which type are they?)**

| | They tend to be my favorites | They're OK | They tend to be my least favorites | Rating Average | Response Count |
|---|---|---|---|---|---|
| Standardized dress shirts | 40.0% (6) | 60.0% (9) | 0.0% (0) | 1.00 | 15 |
| Custom Tailored dress shirts | 60.0% (9) | 40.0% (6) | 0.0% (0) | 1.00 | 15 |
| answered question | | | | | 15 |
| skipped question | | | | | 252 |

***Page 27.*** Quantitative Survey

**44. Please rank the following characteristics in order of importance for the shopping experience of purchasing a STANDARDIZED DRESS SHIRT. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Good selection at store | **53.3% (8)** | 26.7% (4) | 6.7% (1) | 6.7% (1) | 6.7% (1) | 15 |
| Knowledgeable sales staff at store | 6.7% (1) | 26.7% (4) | 13.3% (2) | 20.0% (3) | **33.3% (5)** | 15 |
| Efficiency and predictability of purchasing process | 13.3% (2) | 13.3% (2) | 26.7% (4) | **33.3% (5)** | 13.3% (2) | 15 |
| Familiar brands available at store | 20.0% (3) | **26.7% (4)** | 13.3% (2) | 20.0% (3) | 20.0% (3) | 15 |
| Convenient location of store | 6.7% (1) | 6.7% (1) | **40.0% (6)** | 20.0% (3) | 26.7% (4) | 15 |
| | | | | | **answered question** | **15** |
| | | | | | **skipped question** | **252** |

**45. Please rank the following reasons in order of importance when working with a tailor to create your CUSTOM TAILORED DRESS SHIRTS. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| One-on-one relationship with my tailor | 6.7% (1) | 20.0% (3) | **26.7% (4)** | 20.0% (3) | **26.7% (4)** | 15 |
| Ability to touch and feel fabric | 20.0% (3) | **26.7% (4)** | 20.0% (3) | 20.0% (3) | 13.3% (2) | 15 |
| Ability to purchase other personalized/matching clothing items at same time and/or location | 6.7% (1) | 0.0% (0) | 26.7% (4) | 20.0% (3) | **46.7% (7)** | 15 |
| Relevant wardrobe advice | 26.7% (4) | 13.3% (2) | 20.0% (3) | **33.3% (5)** | 6.7% (1) | 15 |
| Guaranteed to be exactly what I want | **40.0% (6)** | **40.0% (6)** | 6.7% (1) | 6.7% (1) | 6.7% (1) | 15 |
| | | | | | **answered question** | **15** |
| | | | | | **skipped question** | **252** |

***Page 28.*** Quantitative Survey

**46. Of your total number of dress shirts (your answer was: [Q4]), how many are of the followin**

**Standardized Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 | |
|---|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 6.7% (1) | 6.7% (1) | 46.7% (7) | 26.7% (4) | 13.3% (2) | |

**Made to Measure Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 | |
|---|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 33.3% (5) | 13.3% (2) | 33.3% (5) | 13.3% (2) | 6.7% (1) | |

answere

skippe

**47. Of your total number of dress shirts, how often do you wear the following types?**

**Standardized Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 day |
|---|---|---|---|---|
| Average over the last year | 6.7% (1) | 26.7% (4) | 26.7% (4) | 40 |

**Made to Measure Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 day |
|---|---|---|---|---|
| Average over the last year | 33.3% (5) | 40.0% (6) | 13.3% (2) | 13 |

answ

skij

***Page 29.*** Quantitative Survey

**48. What is the estimated price that you typically pay for a dress shirt?**

**Standardized Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 |
|---|---|---|---|---|---|
| Average price for each shirt type: | 6.7% (1) | **46.7% (7)** | 26.7% (4) | 20.0% (3) | 0.0% (0) |

**Made to Measure Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 |
|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 26.7% (4) | 26.7% (4) | **33.3% (5)** | 13.3% (2) |

answ

skip

**49. Please rank the following characteristics in order of importance when purchasing a dress shirt. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | **33.3% (5)** | **33.3% (5)** | 6.7% (1) | 13.3% (2) | 13.3% (2) | 1.00 | 15 |
| aesthetics | 6.7% (1) | 20.0% (3) | **26.7% (4)** | **26.7% (4)** | 20.0% (3) | 1.00 | 15 |
| fabric / construction quality | 20.0% (3) | 26.7% (4) | **40.0% (6)** | 13.3% (2) | 0.0% (0) | 1.00 | 15 |
| brand familiarity | 6.7% (1) | 6.7% (1) | 0.0% (0) | 26.7% (4) | **60.0% (9)** | 1.00 | 15 |
| price / value | **33.3% (5)** | 13.3% (2) | 26.7% (4) | 20.0% (3) | 6.7% (1) | 1.00 | 15 |
| | | | | | **answered question** | | **15** |
| | | | | | **skipped question** | | **252** |

**50. When purchasing a Made to Measure dress shirt, what feature(s) do you typically like to customize? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Fabric material (cotton, silk, synthetic, etc.) | 33.3% | 5 |
| **Size/dimension** | **73.3%** | **11** |
| Fabric pattern/color | 40.0% | 6 |
| **Collar style** | **73.3%** | **11** |
| Monogram | 26.7% | 4 |
| Cuff Style | 46.7% | 7 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 6.7% | 1 |
| Buttons | 13.3% | 2 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **15** |
| | **skipped question** | **252** |

**51. Which dress shirts tend to be your favorites? (which type are they?)**

| | They tend to be my favorites | They're OK | They tend to be my least favorites | Rating Average | Response Count |
|---|---|---|---|---|---|
| Standardized dress shirts | **60.0% (9)** | 40.0% (6) | 0.0% (0) | 1.00 | 15 |
| Made to Measure dress shirts | **42.9% (6)** | 35.7% (5) | 21.4% (3) | 1.00 | 14 |
| | | | **answered question** | | **15** |
| | | | **skipped question** | | **252** |

***Page 31.*** Quantitative Survey

**52. Please rank the following characteristics in order of importance for the shopping experience of purchasing a STANDARDIZED DRESS SHIRT. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Good selection at store | 33.3% (5) | **40.0% (6)** | 20.0% (3) | 0.0% (0) | 6.7% (1) | 15 |
| Knowledgeable sales staff at store | 6.7% (1) | 13.3% (2) | 0.0% (0) | 33.3% (5) | **46.7% (7)** | 15 |
| Efficiency and predictability of purchasing process | 20.0% (3) | 20.0% (3) | **33.3% (5)** | 13.3% (2) | 13.3% (2) | 15 |
| Familiar brands available at store | 6.7% (1) | 20.0% (3) | 13.3% (2) | **40.0% (6)** | 20.0% (3) | 15 |
| Convenient location of store | **33.3% (5)** | 6.7% (1) | **33.3% (5)** | 13.3% (2) | 13.3% (2) | 15 |
| | | | | | **answered question** | **15** |
| | | | | | **skipped question** | **252** |

**53. Please rank the following reasons in order of importance for purchasing a MADE TO MEASURE DRESS SHIRT. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Ability to create a uniquely styled shirt | 13.3% (2) | 20.0% (3) | 13.3% (2) | 20.0% (3) | **33.3% (5)** | 15 |
| Ease of online shopping | 6.7% (1) | 33.3% (5) | **40.0% (6)** | 20.0% (3) | 0.0% (0) | 15 |
| Shirt is delivered directly to me | 0.0% (0) | 6.7% (1) | 13.3% (2) | **40.0% (6)** | **40.0% (6)** | 15 |
| Getting a shirt that I know will fit me | **66.7% (10)** | 20.0% (3) | 13.3% (2) | 0.0% (0) | 0.0% (0) | 15 |
| Less expensive than custom-tailored dress shirts | 13.3% (2) | 20.0% (3) | 20.0% (3) | 20.0% (3) | **26.7% (4)** | 15 |
| | | | | | **answered question** | **15** |
| | | | | | **skipped question** | **252** |

**54. Of your total number of dress shirts (your answer was: [Q4]), how many are of the following types?**

**Custom Tailored Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 | 40+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 0.0% (0) | 33.3% (2) | 33.3% (2) | 16.7% (1) | 16.7% (1) | 0.0% (0) | 6 |

**Made to Measure Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 | 40+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 16.7% (1) | 16.7% (1) | 66.7% (4) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 6 |

| | |
|---|---|
| answered question | 6 |
| skipped question | 745 |

**55. Of your total number of dress shirts, how often do you wear the following types?**

**Custom Tailored Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 days/work week | Response Count |
|---|---|---|---|---|---|
| Average over the last year | 0.0% (0) | 0.0% (0) | 83.3% (5) | 16.7% (1) | 6 |

**Made to Measure Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 days/work week | Response Count |
|---|---|---|---|---|---|
| Average over the last year | 0.0% (0) | 33.3% (2) | 66.7% (4) | 0.0% (0) | 6 |

| | |
|---|---|
| answered question | 6 |
| skipped question | 745 |



**56. What is the estimated price that you typically pay for a dress shirt?**

**Custom Tailored Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 16.7% (1) | 0.0% (0) | 50.0% (3) | 33.3% (2) | 0.0% (0) | 6 |

**Made to Measure Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 0.0% (0) | 16.7% (1) | 83.3% (5) | 0.0% (0) | 0.0% (0) | 6 |

| | |
|---|---|
| answered question | 6 |
| skipped question | 745 |

**57. Please rank the following characteristics in order of importance when purchasing a dress shirt. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | **100.0% (4)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 4 |
| aesthetics | 0.0% (0) | 0.0% (0) | **50.0% (2)** | **50.0% (2)** | 0.0% (0) | 1.00 | 4 |
| fabric / construction quality | 0.0% (0) | **50.0% (2)** | **50.0% (2)** | 0.0% (0) | 0.0% (0) | 1.00 | 4 |
| brand familiarity | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | **100.0% (4)** | 1.00 | 4 |
| price / value | 0.0% (0) | **50.0% (2)** | 0.0% (0) | **50.0% (2)** | 0.0% (0) | 1.00 | 4 |
| | | | | | | **answered question** | **4** |
| | | | | | | **skipped question** | **747** |

***Page 34.*** Quantitative Survey

**58. When purchasing a dress shirt, what feature(s) do you typically customize? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Fabric material (cotton, silk, synthetic, etc.) | 50.0% | 1 |
| Size/dimension | 100.0% | 2 |
| Fabric pattern/color | 50.0% | 1 |
| Collar style | 0.0% | 0 |
| Monogram | 0.0% | 0 |
| Cuff Style | 0.0% | 0 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 0.0% | 0 |
| Buttons | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 2 |
| | skipped question | 265 |

**59. Which dress shirts tend to be your favorites? (which type are they?)**

| | They tend to be my favorites | They're OK | They tend to be my least favorites | Rating Average | Response Count |
|---|---|---|---|---|---|
| Custom Tailored Shirts | 50.0% (1) | 50.0% (1) | 0.0% (0) | 1.00 | 2 |
| Made to Measure Shirts | 50.0% (1) | 50.0% (1) | 0.0% (0) | 1.00 | 2 |
| | | | answered question | | 2 |
| | | | skipped question | | 265 |

***Page 35.*** Quantitative Survey

**60. Please rank the following reasons in order of importance when working with a tailor to create your CUSTOM TAILORED DRESS SHIRTS. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| One-on-One relationship with my tailor | 0.0% (0) | **50.0% (1)** | 0.0% (0) | 0.0% (0) | **50.0% (1)** | 2 |
| Ability to touch and feel fabric | 0.0% (0) | 0.0% (0) | **100.0% (2)** | 0.0% (0) | 0.0% (0) | 2 |
| Ability to purchase other personalized/matching clothing items at same time and/or location | 0.0% (0) | 0.0% (0) | 0.0% (0) | **50.0% (1)** | **50.0% (1)** | 2 |
| Relevant wardrobe advice | 0.0% (0) | **50.0% (1)** | 0.0% (0) | **50.0% (1)** | 0.0% (0) | 2 |
| Guaranteed to be exactly what I want | **100.0% (2)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 2 |
| | | | | | **answered question** | **2** |
| | | | | | **skipped question** | **265** |

**61. Please rank the following reasons in order of importance for purchasing a MADE TO MEASURE DRESS SHIRTS. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Ability to create a uniquely styled shirt | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | **100.0% (2)** | 2 |
| Ease of online shopping | **50.0% (1)** | 0.0% (0) | **50.0% (1)** | 0.0% (0) | 0.0% (0) | 2 |
| Shirt is delivered directly to me | 0.0% (0) | 0.0% (0) | **50.0% (1)** | **50.0% (1)** | 0.0% (0) | 2 |
| Getting a shirt that I know will fit me | **50.0% (1)** | 0.0% (0) | 0.0% (0) | **50.0% (1)** | 0.0% (0) | 2 |
| Less expensive than custom-tailored dress shirts | 0.0% (0) | **100.0% (2)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 2 |
| | | | | | **answered question** | **2** |
| | | | | | **skipped question** | **265** |

***Page 36.*** Quantitative Survey

**62. Of your total number of dress shirts for work (your answer was: [Q4]), how many are of the following types?**

**Standardized Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 | 40+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 8.0% (4) | 8.0% (4) | 44.0% (22) | 24.0% (12) | 12.0% (6) | 4.0% (2) | 50 |

**Made to Measure Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 | 40+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 38.0% (19) | 24.0% (12) | 16.0% (8) | 18.0% (9) | 4.0% (2) | 0.0% (0) | 50 |

**Custom Tailored Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20-39 | 40+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please divide your total into each category to the right. | 34.0% (17) | 28.0% (14) | 28.0% (14) | 10.0% (5) | 0.0% (0) | 0.0% (0) | 50 |

| | |
|---|---|
| answered question | 50 |
| skipped question | 701 |

***Page 37.*** Quantitative Survey

**63. Of your total number of dress shirts, how often do you wear the following types?**

**Standardized Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 days/work week | Response Count |
|---|---|---|---|---|---|
| Average over the last year | 14.0% (7) | 20.0% (10) | 40.0% (20) | 26.0% (13) | 50 |

**Made to Measure Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 days/work week | Response Count |
|---|---|---|---|---|---|
| Average over the last year | 26.0% (13) | 30.0% (15) | 38.0% (19) | 6.0% (3) | 50 |

**Custom Tailored Shirts**

| | 1-10 days/year | 1-3 days/work month | 1-3 days/work week | 4-5 days/work week | Response Count |
|---|---|---|---|---|---|
| Average over the last year | 34.0% (17) | 20.0% (10) | 38.0% (19) | 8.0% (4) | 50 |

| | |
|---|---|
| answered question | 50 |
| skipped question | 701 |

***Page 38.*** Quantitative Survey

**64. What is the estimated price that you typically pay for a dress shirt?**

**Standardized Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 4.0% (2) | 32.0% (16) | **34.0% (17)** | 26.0% (13) | 4.0% (2) | 0.0% (0) | 50 |

**Made to Measure Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 8.0% (4) | 6.0% (3) | 22.0% (11) | **40.0% (20)** | 22.0% (11) | 2.0% (1) | 50 |

**Custom Tailored Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 6.0% (3) | 0.0% (0) | 12.0% (6) | 32.0% (16) | **42.0% (21)** | 8.0% (4) | 50 |
| | | | | | | **answered question** | **50** |
| | | | | | | **skipped question** | **701** |

***Page 39.*** Quantitative Survey

**65. Please rank the following characteristics in order of importance when purchasing a dress shirt. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | **70.6% (12)** | 17.6% (3) | 5.9% (1) | 5.9% (1) | 0.0% (0) | 1.00 | 17 |
| aesthetics | 0.0% (0) | 11.8% (2) | 23.5% (4) | **47.1% (8)** | 17.6% (3) | 1.00 | 17 |
| fabric / construction quality | 17.6% (3) | **41.2% (7)** | **41.2% (7)** | 0.0% (0) | 0.0% (0) | 1.00 | 17 |
| brand familiarity | 0.0% (0) | 5.9% (1) | 5.9% (1) | 17.6% (3) | **70.6% (12)** | 1.00 | 17 |
| price / value | 11.8% (2) | 23.5% (4) | 23.5% (4) | **29.4% (5)** | 11.8% (2) | 1.00 | 17 |
| | | | | | **answered question** | | **17** |
| | | | | | **skipped question** | | **250** |

***Page 40.*** Quantitative Survey

**66. When purchasing either a Made to Measure or a Custom Tailored dress shirt, what feature(s) do you typically customize? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Fabric material (cotton, silk, synthetic, etc.) | 52.9% | 9 |
| Size/dimension | 76.5% | 13 |
| Fabric pattern/color | 41.2% | 7 |
| Collar style | 70.6% | 12 |
| Monogram | 41.2% | 7 |
| Cuff Style | 64.7% | 11 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 17.6% | 3 |
| Buttons | 17.6% | 3 |
| Other (please specify) | 11.8% | 2 |
| answered question | | 17 |
| skipped question | | 250 |

**67. Which dress shirts tend to be your favorites? (which type are they?)**

| | They tend to be my favorites | They're OK | They tend to be my least favorites | Rating Average | Response Count |
|---|---|---|---|---|---|
| Standardized Shirts | 17.6% (3) | 17.6% (3) | 64.7% (11) | 1.00 | 17 |
| Made to Measure Shirts | 23.5% (4) | 58.8% (10) | 17.6% (3) | 1.00 | 17 |
| Custom Tailored Shirts | 58.8% (10) | 23.5% (4) | 17.6% (3) | 1.00 | 17 |
| answered question | | | | | 17 |
| skipped question | | | | | 250 |

***Page 41.*** Quantitative Survey

**68. Please rank the following characteristics in order of importance when purchasing a STANDARDIZED DRESS SHIRT. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Good selection at store | **37.5% (6)** | 18.8% (3) | 31.3% (5) | 0.0% (0) | 12.5% (2) | 16 |
| Knowledgeable sales staff at store | **25.0% (4)** | 12.5% (2) | 18.8% (3) | 18.8% (3) | **25.0% (4)** | 16 |
| Efficiency and predictability of purchasing process | 6.3% (1) | **37.5% (6)** | 12.5% (2) | 25.0% (4) | 18.8% (3) | 16 |
| Familiar brands available at store | 18.8% (3) | **25.0% (4)** | 12.5% (2) | 18.8% (3) | **25.0% (4)** | 16 |
| Convenient location of store | 12.5% (2) | 6.3% (1) | 25.0% (4) | **37.5% (6)** | 18.8% (3) | 16 |
| | | | | | **answered question** | **16** |
| | | | | | **skipped question** | **251** |

**69. Please rank the following reasons in order of importance for purchasing a MADE TO MEASURE DRESS SHIRT. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| Ability to create a uniquely styled shirt | 6.3% (1) | 6.3% (1) | 31.3% (5) | **37.5% (6)** | 18.8% (3) | 16 |
| Ease of online shopping | 12.5% (2) | 12.5% (2) | 31.3% (5) | 6.3% (1) | **37.5% (6)** | 16 |
| Shirt is delivered directly to me | 0.0% (0) | **31.3% (5)** | 12.5% (2) | **31.3% (5)** | 25.0% (4) | 16 |
| Getting a shirt that I know will fit me | **62.5% (10)** | 12.5% (2) | 18.8% (3) | 6.3% (1) | 0.0% (0) | 16 |
| Less expensive than custom-tailored dress shirts | 18.8% (3) | **37.5% (6)** | 6.3% (1) | 18.8% (3) | 18.8% (3) | 16 |
| | | | | | **answered question** | **16** |
| | | | | | **skipped question** | **251** |

***Page 42.*** Quantitative Survey

**70. Please rank the following reasons in order of importance when working with a tailor to create your CUSTOM TAILORED DRESS SHIRTS. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Response Count |
|---|---|---|---|---|---|---|
| One-on-one relationship with my tailor | 6.3% (1) | 18.8% (3) | **25.0% (4)** | **25.0% (4)** | **25.0% (4)** | 16 |
| Ability to touch and feel fabric | 12.5% (2) | **31.3% (5)** | 25.0% (4) | 12.5% (2) | 18.8% (3) | 16 |
| Ability to purchase other personalized/matching clothing items at same time and/or location | 6.3% (1) | 25.0% (4) | **31.3% (5)** | 25.0% (4) | 12.5% (2) | 16 |
| Relevant wardrobe advice | 12.5% (2) | 12.5% (2) | 12.5% (2) | 25.0% (4) | **37.5% (6)** | 16 |
| Guaranteed to be exactly what I want | **62.5% (10)** | 12.5% (2) | 6.3% (1) | 12.5% (2) | 6.3% (1) | 16 |
| | | | | | **answered question** | **16** |
| | | | | | **skipped question** | **251** |

**71. Have you ever purchased a dress shirt (excluding the purchase of gift certificates) for a male family member, friend, partner, or spouse?**

| | Response Percent | Response Count |
|---|---|---|
| yes | 0.0% | 0 |
| no | 0.0% | 0 |
| | **answered question** | **0** |
| | **skipped question** | **267** |

***Page 43.*** Quantitative Survey

**72. Please select which types of shirts that you have purchased for any male friends, family members, partners, or spouses. (see below for dress shirt type definitions)**

| | Response Percent | Response Count |
|---|---|---|
| Only Standardized shirts | 78.5% | 62 |
| Only Custom Tailored shirts | 0.0% | 0 |
| Only Made to Measure shirts | 0.0% | 0 |
| Only Standardized and Custom Tailored shirts | 8.9% | 7 |
| Only Standardized and Made to Measure shirts | 3.8% | 3 |
| Only Custom Tailored and Made to Measure shirts | 1.3% | 1 |
| I have purchased ALL THREE TYPES | 7.6% | 6 |
| answered question | | 79 |
| skipped question | | 672 |

**73. What is the estimated price that you typically pay for a dress shirt?**

**Standardized Dress Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 14.3% (1) | 42.9% (3) | 42.9% (3) | 0.0% (0) | 0.0% (0) | 7 |

**Custom Tailored Dress Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 14.3% (1) | 0.0% (0) | 0.0% (0) | 42.9% (3) | 42.9% (3) | 0.0% (0) | 7 |
| answered question | | | | | | | 7 |
| skipped question | | | | | | | 744 |

***Page 44.*** Quantitative Survey

**74. Please rank the following characteristics in order of importance when purchasing a dress shirt for a man. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| aesthetics | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| fabric / construction quality | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| brand familiarity | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| price / value | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | | | | answered question | 0 |
| | | | | | | skipped question | 267 |

**75. Which dress shirts are you typically most satisfied with after purchasing for him? (which type are they?)**

| | I tend to be most satisfied with | They're OK | I tend to be least satisfied with | Rating Average | Response Count |
|---|---|---|---|---|---|
| Standardized dress shirts | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| Custom Tailored dress shirts | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | | answered question | 0 |
| | | | | skipped question | 267 |

***Page 45.*** Quantitative Survey

**76. Are there any specific reasons you have not purchased Custom Tailored dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 0.0% | 0 |
| I didn't know his size / measurements | 0.0% | 0 |
| It takes too much time to work with a tailor | 0.0% | 0 |
| I did not know that shirts could be custom tailored | 0.0% | 0 |
| There are no tailors conveniently located near me | 0.0% | 0 |
| Other | 0.0% | 0 |
| | **answered question** | **0** |
| | **skipped question** | **267** |

***Page 46.*** Quantitative Survey

**77. Of the total number of dress shirts that you have purchased for men, how many are of the following types?**

**Standardized Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | 0.0% (0) | **66.7% (2)** | 33.3% (1) | 0.0% (0) | 0.0% (0) | 3 |

**Made to Measure Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | **66.7% (2)** | 33.3% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 3 |
| | | | | | **answered question** | **3** |
| | | | | | **skipped question** | **748** |

***Page 47.*** Quantitative Survey

**78. Of the total number of dress shirts that you have purchased for men, how many are of the following types?**

**Standardized Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | 33.3% (2) | 33.3% (2) | 16.7% (1) | 0.0% (0) | 16.7% (1) | 6 |

**Made to Measure Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | 50.0% (3) | 16.7% (1) | 33.3% (2) | 0.0% (0) | 0.0% (0) | 6 |

**Custom Tailored Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | 66.7% (4) | 33.3% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 6 |

| | |
|---|---|
| answered question | 6 |
| skipped question | 745 |

***Page 48.*** Quantitative Survey

**79. What is the estimated price that you typically pay for a dress shirt?**

**Standardized Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 66.7% (4) | 33.3% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 6 |

**Made to Measure Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 0.0% (0) | 16.7% (1) | 83.3% (5) | 0.0% (0) | 0.0% (0) | 6 |

**Custom Tailored Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 0.0% (0) | 0.0% (0) | 33.3% (2) | 66.7% (4) | 0.0% (0) | 6 |

| | |
|---|---|
| answered question | 6 |
| skipped question | 745 |

***Page 49.*** Quantitative Survey

**80. Please rank the following characteristics in order of importance when purchasing a dress shirt for a man. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | **50.0% (3)** | 16.7% (1) | 0.0% (0) | 0.0% (0) | 33.3% (2) | 1.00 | 6 |
| aesthetics | 0.0% (0) | 0.0% (0) | **66.7% (4)** | 33.3% (2) | 0.0% (0) | 1.00 | 6 |
| fabric / construction quality | **33.3% (2)** | **33.3% (2)** | 16.7% (1) | 16.7% (1) | 0.0% (0) | 1.00 | 6 |
| brand familiarity | 16.7% (1) | 16.7% (1) | 16.7% (1) | 16.7% (1) | **33.3% (2)** | 1.00 | 6 |
| price / value | 0.0% (0) | **33.3% (2)** | 0.0% (0) | **33.3% (2)** | **33.3% (2)** | 1.00 | 6 |
| | | | | | | answered question | 6 |
| | | | | | | skipped question | 745 |

**81. Which dress shirts are you typically most satisfied with after purchasing for him? (which type are they?)**

| | I tend to be most satisfied with | They're OK | I tend to be least satisfied with | Rating Average | Response Count |
|---|---|---|---|---|---|
| Standardized shirts | 16.7% (1) | 0.0% (0) | **83.3% (5)** | 1.00 | 6 |
| Made to Measure shirts | 16.7% (1) | **83.3% (5)** | 0.0% (0) | 1.00 | 6 |
| Custom Tailored shirts | **66.7% (4)** | 16.7% (1) | 16.7% (1) | 1.00 | 6 |
| | | | | answered question | 6 |
| | | | | skipped question | 745 |

**82. What is the estimated price that you typically pay for a dress shirt?**

**Standardized Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | **33.3% (1)** | **33.3% (1)** | 0.0% (0) | 0.0% (0) | **33.3% (1)** | 0.0% (0) | 3 |

**Made to Measure Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | **33.3% (1)** | **33.3% (1)** | 0.0% (0) | **33.3% (1)** | 0.0% (0) | 3 |
| | | | | | | answered question | 3 |
| | | | | | | skipped question | 748 |

**83. Please rank the following characteristics in order of importance when purchasing a dress shirt for a man. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| aesthetics | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| fabric / construction quality | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| brand familiarity | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| price / value | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | | | answered question | | 0 |
| | | | | | skipped question | | 267 |

**84. Which dress shirts are you typically most satisfied with after purchasing for him? (which type are they?)**

| | I tend to be most satisfied with | They're OK | I tend to be least satisfied with | Rating Average | Response Count |
|---|---|---|---|---|---|
| Standardized shirts | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| Made to Measure shirts | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | answered question | | 0 |
| | | | skipped question | | 267 |

***Page 51.*** Quantitative Survey

**85. Are there any specific reasons you have not purchased Custom Tailored dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 0.0% | 0 |
| I didn't know his size / measurements | 0.0% | 0 |
| It takes too much time to work with a tailor | 0.0% | 0 |
| I did not know that shirts could be custom tailored | 0.0% | 0 |
| There are no tailors conveniently located near me | 0.0% | 0 |
| Other | 0.0% | 0 |
| | **answered question** | **0** |
| | **skipped question** | **267** |

***Page 52.*** Quantitative Survey

**86. Are there any specific reasons you have not purchased Made to Measure dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 0.0% | 0 |
| It takes too much time to configure a shirt online | 0.0% | 0 |
| I've never heard of made to measure shirts | 0.0% | 0 |
| I wouldn't buy a shirt unless he could try it on | 0.0% | 0 |
| I prefer having a salesperson to help me choose a shirt | 0.0% | 0 |
| Other | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 267 |

**87. What is the estimated price that you typically pay for a dress shirt for a man?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20-$39 | 0.0% | 0 |
| $40-$59 | 0.0% | 0 |
| $60-$99 | 0.0% | 0 |
| $100-$199 | 0.0% | 0 |
| greater than $200 | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 267 |

***Page 53.*** Quantitative Survey

**88. Please rank the following characteristics in order of importance when purchasing a Standardized Dress Shirt for a man. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| aesthetics | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| fabric / construction quality | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| brand familiarity | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| price / value | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | | | | answered question | 0 |
| | | | | | | skipped question | 267 |

**89. What is the estimated price that you typically pay for a dress shirt for a man?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20-$39 | 0.0% | 0 |
| $40-$59 | 0.0% | 0 |
| $60-$99 | 0.0% | 0 |
| $100-$199 | 0.0% | 0 |
| greater than $200 | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 267 |

***Page 54.*** Quantitative Survey

**90. Please rank the following characteristics in order of importance when purchasing a Made to Measure Dress Shirt for a man. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| aesthetics | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| fabric / construction quality | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| brand familiarity | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| price / value | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | | | | answered question | 0 |
| | | | | | | skipped question | 267 |

**91. What is the estimated price that you typically pay for a dress shirt for a man?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20-$39 | 0.0% | 0 |
| $40-$59 | 0.0% | 0 |
| $60-$99 | 0.0% | 0 |
| $100-$199 | 0.0% | 0 |
| greater than $200 | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 267 |

***Page 55.*** Quantitative Survey

**92. Please rank the following characteristics in order of importance when purchasing a Custom Tailored Dress Shirt for a man. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| aesthetics | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| fabric / construction quality | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| brand familiarity | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| price / value | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | | | | answered question | 0 |
| | | | | | | skipped question | 267 |

**93. Are there any specific reasons you have not purchased Custom Tailored dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 0.0% | 0 |
| I didn't know his size / measurements | 0.0% | 0 |
| It takes too much time to work with a tailor | 0.0% | 0 |
| I did not know that shirts could be custom tailored | 0.0% | 0 |
| There are no tailors conveniently located near me | 0.0% | 0 |
| Other | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 267 |

***Page 56.*** Quantitative Survey

**94. Are there any specific reasons why you have not purchased Standardized Dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They typically don't fit him very well | 0.0% | 0 |
| He does not and/or I do no like the style of most brands available | 0.0% | 0 |
| I don't like shopping at a store for dress shirts | 0.0% | 0 |
| Quality is typically poor | 0.0% | 0 |
| Other | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 267 |

**95. Are there any specific reasons why you have not purchased Standardized Dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They typically don't fit him very well | 0.0% | 0 |
| I do not like and/or I do not think he likes the style of most brands available | 0.0% | 0 |
| I don't like shopping at a store for dress shirts | 0.0% | 0 |
| Quality is typically poor | 0.0% | 0 |
| Other | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 267 |

***Page 57.*** Quantitative Survey

**96. Are there any specific reasons you have not purchased Made to Measure dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 0.0% | 0 |
| It takes too much time to configure a shirt online | 0.0% | 0 |
| I've never heard of made to measure shirts | 0.0% | 0 |
| I wouldn't buy a shirt unless he could try it on | 0.0% | 0 |
| I prefer having a salesperson to help me choose a shirt | 0.0% | 0 |
| Other | 0.0% | 0 |
| | **answered question** | **0** |
| | **skipped question** | **267** |

***Page 58.*** Quantitative Survey

**97. Are there any specific reasons you have not purchased Made to Measure dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They are typically too expensive | 0.0% | 0 |
| It takes too much time to configure a shirt online | 0.0% | 0 |
| I've never heard of made to measure shirts | 0.0% | 0 |
| I wouldn't buy a shirt unless he could try it on | 0.0% | 0 |
| I prefer having a salesperson to help me choose a shirt | 0.0% | 0 |
| Other | 0.0% | 0 |
| | **answered question** | **0** |
| | **skipped question** | **267** |

***Page 59.*** Quantitative Survey

**98. Of the total number of dress shirts that you have purchased for men, how many are of the following types?**

**Standardized Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | 14.3% (1) | 14.3% (1) | 0.0% (0) | 42.9% (3) | 28.6% (2) | 7 |

**Custom Tailored Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | 0.0% (0) | 57.1% (4) | 42.9% (3) | 0.0% (0) | 0.0% (0) | 7 |

| | |
|---|---|
| answered question | 7 |
| skipped question | 744 |

**99. Are there any specific reasons why you have not purchased Standardized Dress shirts for men? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They typically don't fit him very well | 100.0% | 1 |
| I do not like and/or I do not think he likes the style of most brands available | 0.0% | 0 |
| I don't like shopping at a store for dress shirts | 0.0% | 0 |
| Quality is typically poor | 0.0% | 0 |
| Other | 0.0% | 0 |
| answered question | | 1 |
| skipped question | | 750 |

***Page 60.*** Quantitative Survey

**100. Of the total number of dress shirts that you have purchased for men, how many are of the following types?**

**Custom Tailored Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | 0.0% (0) | 0.0% (0) | **100.0% (1)** | 0.0% (0) | 0.0% (0) | 1 |

**Made to Measure Shirts**

| | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|
| Please divide the total into each category to the right. | **100.0% (1)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1 |
| | | | | | **answered question** | 1 |
| | | | | | **skipped question** | 750 |

**101. What is the estimated price that you typically pay for a dress shirt?**

**Custom Tailored Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 0.0% (0) | 0.0% (0) | **100.0% (1)** | 0.0% (0) | 0.0% (0) | 1 |

**Made to Measure Shirts**

| | Less than $19 | $20-$39 | $40-$59 | $60-$99 | $100-$199 | Greater than $200 | Response Count |
|---|---|---|---|---|---|---|---|
| Average price for each shirt type: | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | **100.0% (1)** | 0.0% (0) | 1 |
| | | | | | | **answered question** | 1 |
| | | | | | | **skipped question** | 750 |

**102. Please rank the following characteristics in order of importance when purchasing a dress shirt for a man. 1 = most important; 5 = least important.**

| | 1 | 2 | 3 | 4 | 5 | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| fit | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| aesthetics | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| fabric / construction quality | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| brand familiarity | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| price / value | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | | | answered question | | 0 |
| | | | | | skipped question | | 267 |

**103. Which dress shirts are you typically most satisfied with after purchasing for him? (which type are they?)**

| | I tend to be most satisfied with | They're OK | I tend to be least satisfied with | Rating Average | Response Count |
|---|---|---|---|---|---|
| Custom Tailored shirts | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| Made to Measure shirts | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.00 | 0 |
| | | | answered question | | 0 |
| | | | skipped question | | 267 |

***Page 62.*** Quantitative Survey

**104. If you would like your male family members, friends, partner, or spouse to participate in the survey with a chance for them to win a FREE MEN'S DRESS SHIRT ($100 retail value), please enter up to 3 email addresses below (enter only one email per line). If you do not want to share this with others, just hit submit.**

| | Response Percent | Response Count |
|---|---|---|
| email 1 | 0.0% | 0 |
| email 2 | 0.0% | 0 |
| email 3 | 0.0% | 0 |
| **answered question** | | **0** |
| **skipped question** | | **267** |

**105. What method of cleaning do you use most often for your dress shirts?**

| | Response Percent | Response Count |
|---|---|---|
| Dry clean | 23.0% | 40 |
| **Machine wash** | **62.6%** | **109** |
| Hand wash | 1.1% | 2 |
| Professionally laundered | 13.2% | 23 |
| **answered question** | | **174** |
| **skipped question** | | **93** |

***Page 63.*** Quantitative Survey

**106. How often do you have your dress shirts cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| After every use, no matter what | 46.6% | 81 |
| After every 2nd use | 32.2% | 56 |
| After every 3rd use | 15.5% | 27 |
| Other (please specify) | 5.7% | 10 |
| answered question | | 174 |
| skipped question | | 93 |

**107. What is the number one reason for having your dress shirt cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| It's visibly dirty | 19.0% | 33 |
| It's wrinkled | 37.4% | 65 |
| It's smelly | 31.0% | 54 |
| Other (please specify) | 12.6% | 22 |
| answered question | | 174 |
| skipped question | | 93 |

***Page 64.*** Quantitative Survey

**108. What method of cleaning do you use most often for your dress shirts?**

| | Response Percent | Response Count |
|---|---|---|
| Dry clean | 66.7% | 2 |
| Machine wash | 0.0% | 0 |
| Hand wash | 33.3% | 1 |
| Professionally laundered | 0.0% | 0 |
| answered question | | 3 |
| skipped question | | 264 |

**109. How often do you have your dress shirts cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| After every use, no matter what | 33.3% | 1 |
| After every 2nd use | 33.3% | 1 |
| After every 3rd use | 33.3% | 1 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 3 |
| skipped question | | 264 |

***Page 65.*** Quantitative Survey

**110. What is the number one reason for having your dress shirt cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| It's visibly dirty | 0.0% | 0 |
| It's wrinkled | 0.0% | 0 |
| It's smelly | 66.7% | 2 |
| Other (please specify) | 33.3% | 1 |
| answered question | | 3 |
| skipped question | | 264 |

**111. What method of cleaning do you use most often for your dress shirts?**

| | Response Percent | Response Count |
|---|---|---|
| Dry clean | 0.0% | 0 |
| Machine wash | 50.0% | 1 |
| Hand wash | 0.0% | 0 |
| Professionally laundered | 50.0% | 1 |
| answered question | | 2 |
| skipped question | | 265 |

***Page 66.*** Quantitative Survey

**112. How often do you have your dress shirts cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| After every use, no matter what | 0.0% | 0 |
| After every 2nd use | 50.0% | 1 |
| After every 3rd use | 0.0% | 0 |
| Other (please specify) | 50.0% | 1 |
| answered question | | 2 |
| skipped question | | 265 |

**113. What is the number one reason for having your dress shirt cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| It's visibly dirty | 0.0% | 0 |
| It's wrinkled | 100.0% | 2 |
| It's smelly | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 265 |

***Page 67.*** Quantitative Survey

**114. What method of cleaning do you use most often for your dress shirts?**

| | Response Percent | Response Count |
|---|---|---|
| Dry clean | 46.7% | 7 |
| Machine wash | 26.7% | 4 |
| Hand wash | 0.0% | 0 |
| Professionally laundered | 26.7% | 4 |
| answered question | | 15 |
| skipped question | | 252 |

**115. How often do you have your dress shirts cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| After every use, no matter what | 46.7% | 7 |
| After every 2nd use | 46.7% | 7 |
| After every 3rd use | 6.7% | 1 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 15 |
| skipped question | | 252 |

***Page 68.*** Quantitative Survey

**116. What is the number one reason for having your dress shirt cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| It's visibly dirty | 33.3% | 5 |
| It's wrinkled | 46.7% | 7 |
| It's smelly | 6.7% | 1 |
| Other (please specify) | 13.3% | 2 |
| answered question | | 15 |
| skipped question | | 252 |

**117. What method of cleaning do you use most often for your dress shirts?**

| | Response Percent | Response Count |
|---|---|---|
| Dry clean | 40.0% | 6 |
| Machine wash | 46.7% | 7 |
| Hand wash | 0.0% | 0 |
| Professionally laundered | 13.3% | 2 |
| answered question | | 15 |
| skipped question | | 252 |

***Page 69.*** Quantitative Survey

**118. How often do you have your dress shirts cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| After every use, no matter what | 46.7% | 7 |
| After every 2nd use | 40.0% | 6 |
| After every 3rd use | 6.7% | 1 |
| Other (please specify) | 6.7% | 1 |
| answered question | | 15 |
| skipped question | | 252 |

**119. What is the number one reason for having your dress shirt cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| It's visibly dirty | 20.0% | 3 |
| It's wrinkled | 46.7% | 7 |
| It's smelly | 13.3% | 2 |
| Other (please specify) | 20.0% | 3 |
| answered question | | 15 |
| skipped question | | 252 |

***Page 70.*** Quantitative Survey

**120. What method of cleaning do you use most often for your dress shirts?**

| | Response Percent | Response Count |
|---|---|---|
| Dry clean | 50.0% | 1 |
| Machine wash | 0.0% | 0 |
| Hand wash | 0.0% | 0 |
| Professionally laundered | 50.0% | 1 |
| answered question | | 2 |
| skipped question | | 265 |

**121. How often do you have your dress shirts cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| After every use, no matter what | 100.0% | 2 |
| After every 2nd use | 0.0% | 0 |
| After every 3rd use | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 265 |

***Page 71.*** Quantitative Survey

**122. What is the number one reason for having your dress shirt cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| It's visibly dirty | 0.0% | 0 |
| It's wrinkled | 100.0% | 2 |
| It's smelly | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 265 |

**123. What method of cleaning do you use most often for your dress shirts?**

| | Response Percent | Response Count |
|---|---|---|
| Dry clean | 50.0% | 8 |
| Machine wash | 12.5% | 2 |
| Hand wash | 0.0% | 0 |
| Professionally laundered | 37.5% | 6 |
| answered question | | 16 |
| skipped question | | 251 |

***Page 72.*** Quantitative Survey

**124. How often do you have your dress shirts cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| After every use, no matter what | 43.8% | 7 |
| After every 2nd use | 31.3% | 5 |
| After every 3rd use | 18.8% | 3 |
| Other (please specify) | 6.3% | 1 |
| answered question | | 16 |
| skipped question | | 251 |

**125. What is the number one reason for having your dress shirt cleaned?**

| | Response Percent | Response Count |
|---|---|---|
| It's visibly dirty | 12.5% | 2 |
| It's wrinkled | 81.3% | 13 |
| It's smelly | 6.3% | 1 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 16 |
| skipped question | | 251 |

***Page 73.*** Quantitative Survey

**126. Out of your total number of dress shirt purchases, how many shirts have you had to return?**

| | Response Percent | Response Count |
|---|---|---|
| 0 | 45.4% | 79 |
| 1-2 | 40.8% | 71 |
| 3-4 | 10.3% | 18 |
| 5-9 | 3.4% | 6 |
| 10-19 | 0.0% | 0 |
| 20+ | 0.0% | 0 |
| answered question | | 174 |
| skipped question | | 93 |

***Page 74.*** Quantitative Survey

**127. What was your top reason(s) for returning a dress shirt? (select up to 2 choices)**

| | Response Percent | Response Count |
|---|---|---|
| It did not fit | 54.7% | 52 |
| I did not like the way it looked outside of the store / when I saw it in person | 20.0% | 19 |
| It did not go well with my other clothes | 4.2% | 4 |
| The fabric felt different than expected | 8.4% | 8 |
| The shirt was defective | 24.2% | 23 |
| It was a gift that I did not like | 18.9% | 18 |
| Other (please specify) | 1.1% | 1 |
| answered question | | 95 |
| skipped question | | 172 |

***Page 75.*** Quantitative Survey

**128. Out of your total number of dress shirt purchases, how many shirts have you had to return?**

| | Response Percent | Response Count |
|---|---|---|
| 0 | 33.3% | 1 |
| 1-2 | 66.7% | 2 |
| 3-4 | 0.0% | 0 |
| 5-9 | 0.0% | 0 |
| 10-19 | 0.0% | 0 |
| 20+ | 0.0% | 0 |
| answered question | | 3 |
| skipped question | | 264 |

***Page 76.*** Quantitative Survey

**129. What was your top reason(s) for returning a dress shirt? (select up to 2 choices)**

| | Response Percent | Response Count |
|---|---|---|
| It did not fit | 0.0% | 0 |
| I did not like the way it looked outside of the store / when I saw it in person | 0.0% | 0 |
| It did not go well with my other clothes | 0.0% | 0 |
| The fabric felt different than expected | 50.0% | 1 |
| The shirt was defective | 50.0% | 1 |
| It was a gift that I did not like | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 265 |

***Page 77.*** Quantitative Survey

**130. Out of your total number of dress shirt purchases, how many shirts have you had to return?**

| | Response Percent | Response Count |
|---|---|---|
| 0 | 50.0% | 1 |
| 1-2 | 0.0% | 0 |
| 3-4 | 0.0% | 0 |
| 5-9 | 50.0% | 1 |
| 10-19 | 0.0% | 0 |
| 20+ | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 265 |

***Page 78.*** Quantitative Survey

**131. What was your top reason(s) for returning a dress shirt? (select up to 2 choices)**

| | Response Percent | Response Count |
|---|---|---|
| It did not fit | 0.0% | 0 |
| I did not like the way it looked outside of the store / when I saw it in person | 0.0% | 0 |
| **It did not go well with my other clothes** | **100.0%** | **1** |
| The fabric felt different than expected | 0.0% | 0 |
| The shirt was defective | 0.0% | 0 |
| It was a gift that I did not like | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **1** |
| | **skipped question** | **266** |

**132. Have you ever had to return a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 46.7% | 7 |
| **No** | **53.3%** | **8** |
| | **answered question** | **15** |
| | **skipped question** | **252** |

***Page 79.*** Quantitative Survey

**133. Out of your total number of dress shirt purchases, how many shirts have you had to return?**

**Standardized Dress Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | 8.7% (2) | 52.2% (12) | 30.4% (7) | 4.3% (1) | 4.3% (1) | 0.0% (0) | 23 |

**Made to Measure Dress Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | 52.2% (12) | 39.1% (9) | 8.7% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 23 |

| | |
|---|---|
| answered question | 23 |
| skipped question | 728 |

**134. What was your top reason(s) for returning a dress shirt? (select up to 2 choices)**

| | Response Percent | Response Count |
|---|---|---|
| It did not fit | 69.6% | 16 |
| I did not like the way it looked outside of the store / when I saw it in person | 26.1% | 6 |
| It did not go well with my other clothes | 0.0% | 0 |
| The fabric felt different than expected | 8.7% | 2 |
| The shirt was defective | 17.4% | 4 |
| It was a gift that I did not like | 26.1% | 6 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 23 |
| skipped question | | 728 |

***Page 80.*** Quantitative Survey

**135. Have you ever had to return a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 38.8% | 26 |
| No | 61.2% | 41 |
| answered question | | 67 |
| skipped question | | 684 |

***Page 81.*** Quantitative Survey

**136. Out of your total number of dress shirt purchases, how many shirts have you had to return?**

**Standardized Dress Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | 15.4% (4) | **50.0% (13)** | 23.1% (6) | 11.5% (3) | 0.0% (0) | 0.0% (0) | 26 |

**Custom Tailored Dress Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | **61.5% (16)** | 30.8% (8) | 3.8% (1) | 3.8% (1) | 0.0% (0) | 0.0% (0) | 26 |

| | |
|---|---|
| **answered question** | **26** |
| **skipped question** | **725** |

***Page 82.*** Quantitative Survey

**137. What was your top reason(s) for returning a dress shirt? (select up to 2 choices)**

| | Response Percent | Response Count |
|---|---|---|
| **It did not fit** | **61.5%** | **16** |
| I did not like the way it looked outside of the store / when I saw it in person | 30.8% | 8 |
| It did not go well with my other clothes | 3.8% | 1 |
| The fabric felt different than expected | 7.7% | 2 |
| The shirt was defective | 38.5% | 10 |
| It was a gift that I did not like | 7.7% | 2 |
| Other (please specify) | 0.0% | 0 |
| **answered question** | | **26** |
| **skipped question** | | **725** |

***Page 83.*** Quantitative Survey

**138. Have you ever had to return a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 75.0% | 3 |
| No | 25.0% | 1 |
| answered question | | 4 |
| skipped question | | 747 |

**139. Out of your total number of dress shirt purchases, how many shirts have you had to return?**

**Custom Tailored Dress Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | 66.7% (2) | 33.3% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 3 |

**Made to Measure Dress Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | 0.0% (0) | 100.0% (3) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 3 |
| answered question | | | | | | | 3 |
| skipped question | | | | | | | 748 |

***Page 84.*** Quantitative Survey

**140. What was your top reason(s) for returning a dress shirt? (select up to 2 choices)**

| | Response Percent | Response Count |
|---|---|---|
| It did not fit | 0.0% | 0 |
| I did not like the way it looked outside of the store / when I saw it in person | 0.0% | 0 |
| It did not go well with my other clothes | 0.0% | 0 |
| The fabric felt different than expected | 0.0% | 0 |
| **The shirt was defective** | **100.0%** | **1** |
| It was a gift that I did not like | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **1** |
| | **skipped question** | **266** |

**141. Have you ever had to return a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 75.0% | 12 |
| No | 25.0% | 4 |
| | **answered question** | **16** |
| | **skipped question** | **251** |

***Page 85.*** Quantitative Survey

**142. Out of your total number of dress shirt purchases, how many shirts have you had to return?**

**Standardized Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | 10.7% (3) | 42.9% (12) | 28.6% (8) | 14.3% (4) | 3.6% (1) | 0.0% (0) | 28 |

**Made to Measure Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | 60.7% (17) | 35.7% (10) | 3.6% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 28 |

**Custom Tailored Shirts**

| | 0 | 1-2 | 3-4 | 5-9 | 10-19 | 20+ | Response Count |
|---|---|---|---|---|---|---|---|
| Please provide estimate for each shirt type: | 78.6% (22) | 17.9% (5) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 3.6% (1) | 28 |

| | |
|---|---|
| answered question | 28 |
| skipped question | 723 |

***Page 86.*** Quantitative Survey

**143. What was your top reason(s) for returning a dress shirt? (select up to 2 choices)**

| | Response Percent | Response Count |
|---|---|---|
| **It did not fit** | **58.3%** | **7** |
| I did not like the way it looked outside of the store / when I saw it in person | 33.3% | 4 |
| It did not go well with my other clothes | 16.7% | 2 |
| The fabric felt different than expected | 16.7% | 2 |
| The shirt was defective | 16.7% | 2 |
| It was a gift that I did not like | 25.0% | 3 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **12** |
| | **skipped question** | **255** |

**144. What is your marital status? (optional)**

| | Response Percent | Response Count |
|---|---|---|
| Single | 19.6% | 44 |
| **Married** | **70.2%** | **158** |
| Domestic Partner | 6.2% | 14 |
| Separated | 1.8% | 4 |
| Divorced | 1.8% | 4 |
| Widowed | 0.4% | 1 |
| | **answered question** | **225** |
| | **skipped question** | **42** |

***Page 87.*** Quantitative Survey

**145. What is your yearly household income range? (optional)**

| | Response Percent | Response Count |
|---|---|---|
| Less than $25,000 | 3.3% | 7 |
| $25,000 - $50,000 | 13.1% | 28 |
| $50,000 - $75,000 | 18.7% | 40 |
| $75,000 - $100,000 | 22.4% | 48 |
| $100,000 - $250,000 | 36.9% | 79 |
| Greater than $250,000 | 5.6% | 12 |
| answered question | | 214 |
| skipped question | | 53 |

**146. Are you currently or have you ever in the past worked professionally (academic and/or industry) within a mass customization business, research group, or consultancy? If you are not sure, select No.**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 7.9% | 18 |
| No | 92.1% | 209 |
| answered question | | 227 |
| skipped question | | 40 |

***Page 88.*** Quantitative Survey

**147. ALL DONE! Please enter your email address below if you would like to be entered into the dress shirt lottery. If you wish not to provide your email, you can still submit your survey. Enter your email address, then click DONE to submit your survey.**

| | Response Count |
|---|---|
| | 207 |
| answered question | 207 |
| skipped question | 60 |

***Page 89.*** Quantitative Survey

*Blank page*
***Page 90.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 1 | 49322 | Nov 11, 2011 7:08 AM |
| 2 | 35749 | Nov 11, 2011 6:45 AM |
| 3 | 37375 | Nov 11, 2011 5:05 AM |
| 4 | 02151 | Nov 11, 2011 3:39 AM |
| 5 | 10029 | Nov 10, 2011 10:52 PM |
| 6 | 35603 | Nov 10, 2011 9:57 PM |
| 7 | 91387 | Nov 10, 2011 7:58 PM |
| 8 | 61821 | Nov 10, 2011 7:35 PM |
| 9 | 07645 | Nov 10, 2011 7:21 PM |
| 10 | 95628 | Nov 10, 2011 7:14 PM |
| 11 | 12835 | Nov 10, 2011 7:02 PM |
| 12 | 29078 | Nov 10, 2011 6:34 PM |
| 13 | 22046 | Nov 10, 2011 6:13 PM |
| 14 | 90501 | Nov 10, 2011 6:00 PM |
| 15 | 98408 | Nov 10, 2011 5:15 PM |
| 16 | 22932 | Nov 10, 2011 5:13 PM |
| 17 | 35541 | Nov 10, 2011 4:42 PM |
| 18 | 92592 | Nov 10, 2011 4:41 PM |
| 19 | 98039 | Nov 10, 2011 4:22 PM |
| 20 | 08108 | Nov 10, 2011 4:08 PM |
| 21 | 32119 | Nov 10, 2011 4:05 PM |
| 22 | 49519 | Nov 10, 2011 3:44 PM |
| 23 | 48108 | Nov 10, 2011 2:49 PM |
| 24 | 19083 | Nov 10, 2011 2:44 PM |
| 25 | 94002 | Nov 10, 2011 2:43 PM |
| 26 | 28774 | Nov 10, 2011 2:33 PM |
| 27 | 22032 | Nov 10, 2011 2:24 PM |

***Page 91.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 28 | 02180 | Nov 10, 2011 2:22 PM |
| 29 | 49103 | Nov 10, 2011 2:13 PM |
| 30 | 76179 | Nov 10, 2011 2:00 PM |
| 31 | 18045 | Nov 10, 2011 1:59 PM |
| 32 | 60015 | Nov 10, 2011 1:51 PM |
| 33 | 93906 | Nov 10, 2011 1:41 PM |
| 34 | 39056 | Nov 10, 2011 1:25 PM |
| 35 | 48038 | Nov 10, 2011 1:11 PM |
| 36 | 46617 | Nov 10, 2011 1:01 PM |
| 37 | 46208 | Nov 10, 2011 12:41 PM |
| 38 | 44195 | Nov 10, 2011 12:38 PM |
| 39 | 32003 | Nov 10, 2011 12:34 PM |
| 40 | 28781 | Nov 10, 2011 12:30 PM |
| 41 | 35957 | Nov 10, 2011 12:29 PM |
| 42 | 77082 | Nov 10, 2011 12:28 PM |
| 43 | 75228 | Nov 10, 2011 12:22 PM |
| 44 | 19406 | Nov 10, 2011 12:11 PM |
| 45 | 48105 | Nov 10, 2011 12:09 PM |
| 46 | 75230 | Nov 10, 2011 11:56 AM |
| 47 | 91344 | Nov 10, 2011 11:55 AM |
| 48 | 94110 | Nov 10, 2011 11:47 AM |
| 49 | 95076 | Nov 10, 2011 11:45 AM |
| 50 | 22033 | Nov 10, 2011 11:45 AM |
| 51 | 92663 | Nov 10, 2011 11:44 AM |
| 52 | 43123 | Nov 10, 2011 11:38 AM |
| 53 | 95404 | Nov 10, 2011 11:33 AM |
| 54 | 80022 | Nov 10, 2011 11:30 AM |

***Page 92.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 55 | 33411 | Nov 10, 2011 11:27 AM |
| 56 | 60641 | Nov 10, 2011 11:19 AM |
| 57 | 47452 | Nov 10, 2011 11:19 AM |
| 58 | 75070 | Nov 10, 2011 11:13 AM |
| 59 | 33178 | Nov 10, 2011 11:12 AM |
| 60 | 08108 | Nov 10, 2011 11:07 AM |
| 61 | 84003 | Nov 10, 2011 11:03 AM |
| 62 | 78730 | Nov 10, 2011 11:02 AM |
| 63 | 30024 | Nov 10, 2011 11:02 AM |
| 64 | 94109 | Nov 10, 2011 11:01 AM |
| 65 | 34787 | Nov 10, 2011 11:00 AM |
| 66 | 90266 | Nov 10, 2011 10:51 AM |
| 67 | 13417 | Nov 10, 2011 10:50 AM |
| 68 | 98133 | Nov 10, 2011 10:49 AM |
| 69 | 66061 | Nov 10, 2011 10:39 AM |
| 70 | 21230 | Nov 10, 2011 10:28 AM |
| 71 | 86016 | Nov 10, 2011 10:24 AM |
| 72 | 98121 | Nov 10, 2011 10:16 AM |
| 73 | 98178 | Nov 10, 2011 10:10 AM |
| 74 | 07008 | Nov 10, 2011 10:02 AM |
| 75 | 85204 | Nov 10, 2011 9:58 AM |
| 76 | 75020 | Nov 10, 2011 9:52 AM |
| 77 | 49021 | Nov 10, 2011 9:46 AM |
| 78 | 23237 | Nov 10, 2011 9:35 AM |
| 79 | 52240 | Nov 10, 2011 9:35 AM |
| 80 | 91784 | Nov 10, 2011 9:30 AM |
| 81 | 99507 | Nov 10, 2011 9:20 AM |

***Page 93.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 82 | 78613 | Nov 10, 2011 9:15 AM |
| 83 | 85284 | Nov 10, 2011 9:15 AM |
| 84 | 92867 | Nov 10, 2011 9:05 AM |
| 85 | 31522 | Nov 10, 2011 9:04 AM |
| 86 | 85715 | Nov 10, 2011 8:56 AM |
| 87 | 76131 | Nov 10, 2011 8:54 AM |
| 88 | 39201 | Nov 10, 2011 8:53 AM |
| 89 | 92881 | Nov 10, 2011 8:52 AM |
| 90 | 02806 | Nov 10, 2011 8:50 AM |
| 91 | 11217 | Nov 10, 2011 8:49 AM |
| 92 | 72207 | Nov 10, 2011 8:44 AM |
| 93 | 60615 | Nov 10, 2011 8:35 AM |
| 94 | 72207 | Nov 10, 2011 8:31 AM |
| 95 | 29201 | Nov 10, 2011 8:30 AM |
| 96 | 85711 | Nov 10, 2011 8:25 AM |
| 97 | 64124 | Nov 10, 2011 8:25 AM |
| 98 | 02461 | Nov 10, 2011 8:24 AM |
| 99 | 60305 | Nov 10, 2011 8:24 AM |
| 100 | 84123 | Nov 10, 2011 8:23 AM |
| 101 | 82730 | Nov 10, 2011 8:22 AM |
| 102 | 33774 | Nov 10, 2011 8:22 AM |
| 103 | 33157 | Nov 10, 2011 8:20 AM |
| 104 | 33063 | Nov 10, 2011 8:20 AM |
| 105 | 62226 | Nov 10, 2011 8:19 AM |
| 106 | 32669 | Nov 10, 2011 8:13 AM |
| 107 | 35674 | Nov 10, 2011 8:12 AM |
| 108 | 48237 | Nov 10, 2011 8:11 AM |

***Page 94.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 109 | 53092 | Nov 10, 2011 8:09 AM |
| 110 | 10021 | Nov 10, 2011 8:06 AM |
| 111 | 95482 | Nov 10, 2011 8:05 AM |
| 112 | 44632 | Nov 10, 2011 8:04 AM |
| 113 | 11354 | Nov 10, 2011 8:04 AM |
| 114 | 13501 | Nov 10, 2011 8:04 AM |
| 115 | 15203 | Nov 10, 2011 8:02 AM |
| 116 | 32708 | Nov 10, 2011 8:01 AM |
| 117 | 37620 | Nov 10, 2011 8:00 AM |
| 118 | 19475 | Nov 10, 2011 7:59 AM |
| 119 | 15234 | Nov 10, 2011 7:59 AM |
| 120 | 62948 | Nov 10, 2011 7:58 AM |
| 121 | 04092 | Nov 10, 2011 7:57 AM |
| 122 | 99353 | Nov 10, 2011 7:57 AM |
| 123 | 08736 | Nov 10, 2011 7:54 AM |
| 124 | 75766 | Nov 10, 2011 7:54 AM |
| 125 | 85203 | Nov 10, 2011 7:52 AM |
| 126 | 78148 | Nov 10, 2011 7:50 AM |
| 127 | 58075 | Nov 10, 2011 7:49 AM |
| 128 | 60657 | Nov 10, 2011 7:48 AM |
| 129 | 43235 | Nov 10, 2011 7:46 AM |
| 130 | 03273 | Nov 10, 2011 7:46 AM |
| 131 | 06762 | Nov 10, 2011 7:45 AM |
| 132 | 75098 | Nov 10, 2011 7:44 AM |
| 133 | 70737 | Nov 10, 2011 7:42 AM |
| 134 | 30013 | Nov 10, 2011 7:41 AM |
| 135 | 10025 | Nov 10, 2011 7:40 AM |

***Page 95.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 136 | 20119 | Nov 10, 2011 7:39 AM |
| 137 | 76020 | Nov 10, 2011 7:39 AM |
| 138 | 94598 | Nov 10, 2011 7:38 AM |
| 139 | 22310 | Nov 10, 2011 7:38 AM |
| 140 | 34997 | Nov 10, 2011 7:37 AM |
| 141 | 11374 | Nov 10, 2011 7:35 AM |
| 142 | 33510 | Nov 10, 2011 7:20 AM |
| 143 | 33777 | Nov 10, 2011 6:23 AM |
| 144 | 22153 | Nov 10, 2011 5:58 AM |
| 145 | 30094 | Nov 10, 2011 5:00 AM |
| 146 | 84095 | Nov 9, 2011 10:51 PM |
| 147 | 94536 | Nov 9, 2011 9:56 PM |
| 148 | 90292 | Nov 9, 2011 9:28 PM |
| 149 | 20008 | Nov 9, 2011 8:06 PM |
| 150 | 10977 | Nov 9, 2011 8:01 PM |
| 151 | 17249 | Nov 9, 2011 7:30 PM |
| 152 | 01450 | Nov 9, 2011 7:27 PM |
| 153 | 95209 | Nov 9, 2011 7:14 PM |
| 154 | 01536 | Nov 9, 2011 7:08 PM |
| 155 | 24556 | Nov 9, 2011 7:07 PM |
| 156 | 33167 | Nov 9, 2011 6:55 PM |
| 157 | 83672 | Nov 9, 2011 6:46 PM |
| 158 | 60047 | Nov 9, 2011 6:41 PM |
| 159 | 84109 | Nov 9, 2011 5:00 PM |
| 160 | 05403 | Nov 9, 2011 4:48 PM |
| 161 | 94064 | Nov 9, 2011 4:44 PM |
| 162 | 85308 | Nov 9, 2011 4:37 PM |

***Page 96.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 163 | 01520 | Nov 9, 2011 4:31 PM |
| 164 | 92630 | Nov 9, 2011 3:55 PM |
| 165 | 60640 | Nov 9, 2011 3:22 PM |
| 166 | 53924 | Nov 9, 2011 2:55 PM |
| 167 | 96707 | Nov 9, 2011 2:49 PM |
| 168 | 24251 | Nov 9, 2011 2:46 PM |
| 169 | 45322 | Nov 9, 2011 2:35 PM |
| 170 | 54452 | Nov 9, 2011 2:21 PM |
| 171 | 92131 | Nov 9, 2011 1:48 PM |
| 172 | 44730 | Nov 9, 2011 1:45 PM |
| 173 | 30076 | Nov 9, 2011 1:38 PM |
| 174 | 32404 | Nov 9, 2011 1:02 PM |
| 175 | 02891 | Nov 9, 2011 12:40 PM |
| 176 | 88007 | Nov 9, 2011 12:38 PM |
| 177 | 93001 | Nov 9, 2011 12:04 PM |
| 178 | 90028 | Nov 9, 2011 12:02 PM |
| 179 | 91107 | Nov 9, 2011 11:51 AM |
| 180 | 60563 | Nov 9, 2011 11:51 AM |
| 181 | 92708 | Nov 9, 2011 11:31 AM |
| 182 | 91024 | Nov 9, 2011 11:18 AM |
| 183 | 48101 | Nov 9, 2011 11:12 AM |
| 184 | 97225 | Nov 9, 2011 11:11 AM |
| 185 | 92115 | Nov 9, 2011 11:01 AM |
| 186 | 94608 | Nov 9, 2011 10:58 AM |
| 187 | 92705 | Nov 9, 2011 10:48 AM |
| 188 | 92081 | Nov 9, 2011 10:43 AM |
| 189 | 90036 | Nov 9, 2011 10:34 AM |

***Page 97.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 190 | 27023 | Nov 9, 2011 10:15 AM |
| 191 | 27023 | Nov 9, 2011 10:13 AM |
| 192 | 55008 | Nov 9, 2011 10:01 AM |
| 193 | 08829 | Nov 9, 2011 9:45 AM |
| 194 | 90095 | Nov 9, 2011 9:42 AM |
| 195 | 28031 | Nov 9, 2011 9:28 AM |
| 196 | 55414 | Nov 9, 2011 9:23 AM |
| 197 | 27030 | Nov 9, 2011 9:20 AM |
| 198 | 83709 | Nov 9, 2011 9:08 AM |
| 199 | 30064 | Nov 9, 2011 9:01 AM |
| 200 | 32084 | Nov 9, 2011 8:58 AM |
| 201 | 66615 | Nov 9, 2011 8:49 AM |
| 202 | 28412 | Nov 9, 2011 8:43 AM |
| 203 | 95677 | Nov 9, 2011 8:42 AM |
| 204 | 49774 | Nov 9, 2011 8:30 AM |
| 205 | 37803 | Nov 9, 2011 8:23 AM |
| 206 | 88007 | Nov 9, 2011 8:22 AM |
| 207 | 75238 | Nov 9, 2011 8:18 AM |
| 208 | 56144 | Nov 9, 2011 8:15 AM |
| 209 | 83703 | Nov 9, 2011 8:15 AM |
| 210 | 90807 | Nov 9, 2011 8:15 AM |
| 211 | 77803 | Nov 9, 2011 8:14 AM |
| 212 | 02673 | Nov 9, 2011 8:12 AM |
| 213 | 89701 | Nov 9, 2011 8:11 AM |
| 214 | 22101 | Nov 9, 2011 8:10 AM |
| 215 | 97209 | Nov 9, 2011 8:07 AM |
| 216 | 60626 | Nov 9, 2011 8:06 AM |

***Page 98.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 217 | 94588 | Nov 9, 2011 8:05 AM |
| 218 | 47401 | Nov 9, 2011 8:03 AM |
| 219 | 29680 | Nov 9, 2011 8:00 AM |
| 220 | 14217 | Nov 9, 2011 7:55 AM |
| 221 | 11050 | Nov 9, 2011 7:55 AM |
| 222 | 66215 | Nov 9, 2011 7:52 AM |
| 223 | 97124 | Nov 9, 2011 7:52 AM |
| 224 | 76244 | Nov 9, 2011 7:49 AM |
| 225 | 17601 | Nov 9, 2011 7:49 AM |
| 226 | 80907 | Nov 9, 2011 7:48 AM |
| 227 | 02893 | Nov 9, 2011 7:46 AM |
| 228 | 05443 | Nov 9, 2011 7:45 AM |
| 229 | 54853 | Nov 9, 2011 7:43 AM |
| 230 | 43110 | Nov 9, 2011 7:41 AM |
| 231 | 08691 | Nov 9, 2011 7:40 AM |
| 232 | 10021 | Nov 9, 2011 7:39 AM |
| 233 | 58501 | Nov 9, 2011 7:39 AM |
| 234 | 55442 | Nov 9, 2011 7:38 AM |
| 235 | 64468 | Nov 9, 2011 7:38 AM |
| 236 | 07882 | Nov 9, 2011 7:37 AM |
| 237 | 67114 | Nov 9, 2011 7:36 AM |
| 238 | 80516 | Nov 9, 2011 7:36 AM |
| 239 | 28480 | Nov 9, 2011 7:35 AM |
| 240 | 15216 | Nov 9, 2011 7:34 AM |
| 241 | 11756 | Nov 9, 2011 7:12 AM |
| 242 | 30034 | Nov 9, 2011 5:34 AM |
| 243 | 43017 | Nov 9, 2011 5:02 AM |

***Page 99.*** Quantitative Survey

| Page 2, Q3. Please enter your ZIP CODE | | |
|---|---|---|
| 244 | 90005 | Nov 9, 2011 2:27 AM |
| 245 | 16823 | Nov 8, 2011 9:57 PM |
| 246 | 84040 | Nov 8, 2011 9:13 PM |
| 247 | 78613 | Nov 8, 2011 6:56 PM |
| 248 | 94118 | Nov 8, 2011 6:10 PM |
| 249 | 19606 | Nov 8, 2011 5:23 PM |
| 250 | 06415 | Nov 8, 2011 5:20 PM |
| 251 | 97303 | Nov 8, 2011 4:43 PM |
| 252 | 96003 | Nov 8, 2011 3:39 PM |
| 253 | 58201 | Nov 8, 2011 1:34 PM |
| 254 | 20878 | Nov 8, 2011 1:20 PM |
| 255 | 94107 | Nov 8, 2011 12:59 PM |
| 256 | 11580 | Nov 8, 2011 12:13 PM |
| 257 | 97366 | Nov 8, 2011 10:24 AM |
| 258 | 22903 | Nov 8, 2011 10:22 AM |
| 259 | 96819 | Nov 8, 2011 9:24 AM |
| 260 | 80260 | Nov 8, 2011 9:18 AM |
| 261 | 94114 | Nov 8, 2011 9:01 AM |
| 262 | 11590 | Nov 8, 2011 8:48 AM |
| 263 | 98321 | Nov 8, 2011 8:12 AM |
| 264 | 55403 | Nov 8, 2011 8:10 AM |
| 265 | 32805 | Nov 8, 2011 7:48 AM |
| 266 | 49505 | Nov 8, 2011 7:47 AM |
| 267 | 36109 | Nov 8, 2011 7:42 AM |

***Page 100.*** Quantitative Survey

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***Page 101.*** Quantitative Survey

**Page 4, Q7. Please select the reasons why you don't wear some or many of the dress shirts in your wardrobe. (select all that apply)**

| | | |
|---|---|---|
| 1 | not necessary | Nov 10, 2011 9:58 PM |
| 2 | Won't wear until what I have has worn out | Nov 10, 2011 7:22 PM |
| 3 | I wear all of my dress shirts | Nov 10, 2011 6:13 PM |
| 4 | None | Nov 10, 2011 5:16 PM |
| 5 | Not as comfortable as others | Nov 10, 2011 4:44 PM |
| 6 | to big | Nov 10, 2011 4:42 PM |
| 7 | got the wrong color | Nov 10, 2011 2:35 PM |
| 8 | N/A | Nov 10, 2011 2:15 PM |
| 9 | Not as comfortable as other shirts | Nov 10, 2011 1:42 PM |
| 10 | I do wear them. | Nov 10, 2011 1:26 PM |
| 11 | Difficult color to match | Nov 10, 2011 12:10 PM |
| 12 | newer shirts I've gotten fit better, look better | Nov 10, 2011 11:48 AM |
| 13 | color...certain suits no longer fit | Nov 10, 2011 11:46 AM |
| 14 | Long Sleeves not required so I wear Polos most of the time | Nov 10, 2011 11:39 AM |
| 15 | Work from home on occasion | Nov 10, 2011 11:16 AM |
| 16 | difficult to iron | Nov 10, 2011 11:15 AM |
| 17 | Some are French Cuffs and a little too formal | Nov 10, 2011 11:01 AM |
| 18 | I have seasonal favorites that get more wear than some others in my closet. | Nov 10, 2011 10:51 AM |
| 19 | NEW AND STILL UN-OPENED | Nov 10, 2011 10:40 AM |
| 20 | some are "too dressy" for work | Nov 10, 2011 10:28 AM |
| 21 | too many choices | Nov 10, 2011 10:10 AM |
| 22 | Rarely wear dress shirts to work | Nov 10, 2011 9:07 AM |
| 23 | don't fit as well as the newer shirts | Nov 10, 2011 9:05 AM |
| 24 | Those shirts that need cuff links get worn less | Nov 10, 2011 8:58 AM |
| 25 | Dont like wearing dress shirts | Nov 10, 2011 8:53 AM |
| 26 | As far as I know, I do wear all of my shirts. | Nov 10, 2011 8:45 AM |
| 27 | As far as I can tell, I do wear most of my shirts. | Nov 10, 2011 8:41 AM |

***Page 102.*** Quantitative Survey

| Page 4, Q7. Please select the reasons why you don't wear some or many of the dress shirts in your wardrobe. (select all that apply) | | |
|---|---|---|
| 28 | I am a Promotional Products Consultant. The majority of my clients were casual apparel. | Nov 10, 2011 8:32 AM |
| 29 | Not need to wear them | Nov 10, 2011 8:24 AM |
| 30 | NA as I wear almost all of my shirts | Nov 10, 2011 8:14 AM |
| 31 | Specialty shirts for occasions, french cuffs, two colors, etc | Nov 10, 2011 8:11 AM |
| 32 | don't feel like wearing cuff links most days | Nov 10, 2011 8:08 AM |
| 33 | They are seasonal according to weight of the fabric. | Nov 10, 2011 8:04 AM |
| 34 | they are not meant for the climate where i currently live...too hot for florida | Nov 10, 2011 8:03 AM |
| 35 | Not much need | Nov 10, 2011 7:40 AM |
| 36 | do not care for them | Nov 10, 2011 7:38 AM |
| 37 | Missing buttons on shirt to replace loss and bad collars | Nov 10, 2011 7:37 AM |
| 38 | Requires being cleaned and pressed | Nov 9, 2011 7:16 PM |
| 39 | NOT A VERY PROFESSIONAL SCENE | Nov 9, 2011 7:09 PM |
| 40 | stains that don't come out in wash/drycleaner | Nov 9, 2011 6:42 PM |
| 41 | Too formal, or high maintenance | Nov 9, 2011 1:49 PM |
| 42 | wear that color combo less often | Nov 9, 2011 12:05 PM |
| 43 | Infrequent occassions for wear. | Nov 9, 2011 10:44 AM |
| 44 | some have holes | Nov 9, 2011 10:15 AM |
| 45 | Some have holes | Nov 9, 2011 10:14 AM |
| 46 | I never really liked the color, fit, collar style, etc. | Nov 9, 2011 9:44 AM |
| 47 | I just cycle through them until they are worn out, then buy a new one. | Nov 9, 2011 9:03 AM |
| 48 | I have shirts bought for wearing with suits which are infrequently worn now. | Nov 9, 2011 8:43 AM |
| 49 | Not my favorites or are seasonal colors/infrequent colors | Nov 9, 2011 8:08 AM |
| 50 | Many are too dressy for everyday work. | Nov 9, 2011 8:05 AM |
| 51 | Just don't like them as well anymore | Nov 9, 2011 7:43 AM |
| 52 | They feel awkward | Nov 9, 2011 7:38 AM |
| 53 | Casual job | Nov 9, 2011 7:37 AM |

***Page 103.*** Quantitative Survey

| Page 4, Q7. Please select the reasons why you don't wear some or many of the dress shirts in your wardrobe. (select all that apply) | | |
|---|---|---|
| 54 | prefer my favorite shirts | Nov 8, 2011 1:00 PM |
| 55 | Does not apply | Nov 8, 2011 8:49 AM |
| 56 | Too nice and I don't want to wear them out. | Nov 8, 2011 8:11 AM |
| 57 | too many | Nov 8, 2011 7:43 AM |

***Page 104.*** Quantitative Survey

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***Page 105.*** Quantitative Survey

| Page 6, Q9. Are there any specific reasons you don't own a Custom Tailored dress shirt? (select all that apply) | | |
|---|---|---|
| 1 | I'm a pretty standard size | Nov 11, 2011 5:08 AM |
| 2 | Years ago I bought custom tailored shirts but no longer. | Nov 10, 2011 4:28 PM |
| 3 | I never have considered it. | Nov 10, 2011 1:28 PM |
| 4 | Never had a reason to | Nov 10, 2011 12:16 PM |
| 5 | Fluctuating weight/size | Nov 10, 2011 11:22 AM |
| 6 | I don't wear cotton shirts. Only performance material shirts. Under Amrour, Nike, etc. | Nov 10, 2011 9:23 AM |
| 7 | Never considered them. | Nov 10, 2011 9:06 AM |
| 8 | never occurred to me | Nov 10, 2011 8:52 AM |
| 9 | I hadn't considered it before, but think it might be too expensive | Nov 10, 2011 8:29 AM |
| 10 | I have pretty standard body, off the rack works fine for me | Nov 10, 2011 8:14 AM |
| 11 | Not sure a tailored shirt is really any better than an off the rack one. | Nov 10, 2011 7:40 AM |
| 12 | why? | Nov 10, 2011 7:39 AM |
| 13 | I never considered it | Nov 10, 2011 7:28 AM |
| 14 | I never had the chance to ever need or want a Custom Tailored dress shirt. | Nov 9, 2011 7:33 PM |
| 15 | shirts are dictated through work. | Nov 9, 2011 6:49 PM |
| 16 | Costs | Nov 9, 2011 9:04 AM |
| 17 | I can wear off-the-rack products without problem, and on those few occasions when I have purchased a custom-tailored suit I have been unhappy with the results; usually the tailor's style preferences predominate. | Nov 9, 2011 8:16 AM |
| 18 | The standard size fits me perfectly. Why pay more and have to wait? | Nov 9, 2011 7:43 AM |
| 19 | Would never occur to me. | Nov 8, 2011 6:16 PM |
| 20 | Assumed it was too expensive, never looked | Nov 8, 2011 10:26 AM |
| 21 | I don't wear dress shirts enough that I need something that nice. | Nov 8, 2011 8:12 AM |

***Page 106.*** Quantitative Survey

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***Page 107.*** Quantitative Survey

**Page 6, Q10. Are there any specific reasons you don't own a Made to Measure dress shirt? (select all that apply)**

| | | |
|---|---|---|
| 1 | standard size fits me well | Nov 11, 2011 5:08 AM |
| 2 | I like to try the product on first because it may not fit and I am stuck with the product. | Nov 10, 2011 4:43 PM |
| 3 | I've never heard of them | Nov 10, 2011 4:11 PM |
| 4 | Never heard of it. | Nov 10, 2011 1:28 PM |
| 5 | never had to learn of a made to measure dress shirt | Nov 10, 2011 12:16 PM |
| 6 | I am interested in the idea but never pursued it. | Nov 10, 2011 11:47 AM |
| 7 | Only wear work shirts made form performance materials:non- cotton or silk. | Nov 10, 2011 9:23 AM |
| 8 | weight fluctuation | Nov 10, 2011 8:55 AM |
| 9 | Have in the past. There are enough good choices for off the rack shirts. | Nov 10, 2011 8:14 AM |
| 10 | never took time to do it | Nov 10, 2011 8:00 AM |
| 11 | why? | Nov 10, 2011 7:39 AM |
| 12 | Shirts are dictated through work. | Nov 9, 2011 6:49 PM |
| 13 | Don't need them for my work | Nov 9, 2011 11:54 AM |
| 14 | Costs | Nov 9, 2011 9:04 AM |
| 15 | I once sought to have some shirts custom-tailored but almost immediately became involved in a controversy with the measurer over sizing and abandoned the effort. Also, I don't know how I could accurately measure myself. | Nov 9, 2011 8:16 AM |
| 16 | For the same reason given above. | Nov 9, 2011 7:43 AM |
| 17 | Prefer to try on before buying | Nov 8, 2011 5:25 PM |
| 18 | Not sure, but would assume inflexible returns | Nov 8, 2011 10:26 AM |
| 19 | I don't wear dress shirts enough that I need something that nice. | Nov 8, 2011 8:12 AM |

***Page 108.*** Quantitative Survey

**Page 8, Q14. From where do you most commonly purchase your dress shirts? (select all that apply)**

| | | |
|---|---|---|
| 1 | Kohls | Nov 10, 2011 4:45 PM |
| 2 | Brooks Brothers | Nov 10, 2011 8:02 AM |
| 3 | LL BEAN, CABELAS | Nov 9, 2011 7:14 PM |
| 4 | Big and tall shop | Nov 8, 2011 5:27 PM |

**Page 8, Q17. When purchasing a dress shirt from an online retailer, how do you typically have the shirt delivered to you?**

| | | |
|---|---|---|
| 1 | Whatever is free first then the cheapest if nothing is free. | Nov 10, 2011 9:47 AM |

**Page 11, Q20. From where do you most commonly purchase your dress shirts? (select up to 2 choices)**

| | | |
|---|---|---|
| 1 | Khols | Nov 10, 2011 1:16 PM |
| 2 | On-line | Nov 10, 2011 9:25 AM |
| 3 | Local Mens' Clothing Store | Nov 9, 2011 9:26 AM |
| 4 | Stand alone retailer (Kohls) | Nov 9, 2011 8:19 AM |
| 5 | Resake stores like Goodwill | Nov 9, 2011 8:18 AM |
| 6 | Retail sale | Nov 9, 2011 7:47 AM |

**Page 12, Q23. Are there any specific reasons why you don't own Standardized Dress shirts? (select all that apply)**

| | | |
|---|---|---|
| 1 | No reason. | Nov 10, 2011 7:56 AM |

**Page 12, Q24. Are there any specific reasons you don't own Made to Measure dress shirts? (select all that apply)**

| | | |
|---|---|---|
| 1 | No reason. | Nov 10, 2011 7:56 AM |
| 2 | I own two made to measure shirts | Nov 10, 2011 7:41 AM |

***Page 109.*** Quantitative Survey

| Page 17, Q34. When purchasing a dress shirt from an online retailer, how do you typically have the shirt delivered to you? | | |
|---|---|---|
| 1 | stores | Nov 8, 2011 7:46 AM |

| Page 20, Q42. When working with tailor to create your custom tailored dress shirt, what feature(s) do you typically like to make the decisions on? (select all that apply) | | |
|---|---|---|
| 1 | Slim fit | Nov 10, 2011 10:55 AM |
| 2 | Although I own some custom tailored shirts, they weren't tailored for me. I bought them at estate sales. | Nov 10, 2011 8:47 AM |

| Page 29, Q66. When purchasing either a Made to Measure or a Custom Tailored dress shirt, what feature(s) do you typically customize? (select all that apply) | | |
|---|---|---|
| 1 | Tapering | Nov 10, 2011 7:42 AM |
| 2 | dont have these | Nov 8, 2011 1:02 PM |

***Page 110.*** Quantitative Survey

| Page 48, Q106. How often do you have your dress shirts cleaned? | | |
|---|---|---|
| 1 | 5 uses | Nov 10, 2011 7:25 PM |
| 2 | As needed | Nov 10, 2011 4:49 PM |
| 3 | generally after each use but if < 4 hor may re wear | Nov 10, 2011 12:50 PM |
| 4 | none | Nov 10, 2011 10:53 AM |
| 5 | Depends on smell / wrinkle ratio | Nov 10, 2011 9:48 AM |
| 6 | never | Nov 10, 2011 8:28 AM |
| 7 | Depends on when it is needed | Nov 10, 2011 8:09 AM |
| 8 | every 1-2 uses - depends | Nov 9, 2011 3:27 PM |
| 9 | It varies depending on temperature and activity levels. | Nov 9, 2011 8:14 AM |
| 10 | Hardly ever | Nov 9, 2011 7:44 AM |

***Page 111.*** Quantitative Survey

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***Page 112.*** Quantitative Survey

**Page 48, Q107. What is the number one reason for having your dress shirt cleaned?**

| | | |
|---|---|---|
| 1 | end of the week | Nov 10, 2011 7:25 PM |
| 2 | pattern | Nov 10, 2011 1:33 PM |
| 3 | na | Nov 10, 2011 10:53 AM |
| 4 | looks nicer after washed by professionals | Nov 10, 2011 8:53 AM |
| 5 | machine wash only | Nov 10, 2011 8:28 AM |
| 6 | none | Nov 10, 2011 8:20 AM |
| 7 | I don't want to wear a shirt twice | Nov 10, 2011 8:17 AM |
| 8 | I know I have worn it. | Nov 10, 2011 8:16 AM |
| 9 | personal preference | Nov 10, 2011 8:05 AM |
| 10 | Clean after every use | Nov 10, 2011 7:44 AM |
| 11 | i wore it all day | Nov 10, 2011 7:43 AM |
| 12 | Cleanliness (kill germs and bacteria) | Nov 10, 2011 7:31 AM |
| 13 | no real reason | Nov 9, 2011 4:41 PM |
| 14 | all of the above | Nov 9, 2011 1:43 PM |
| 15 | I get free dry cleaning through my work | Nov 9, 2011 12:10 PM |
| 16 | I have worn it enough (twice) | Nov 9, 2011 12:00 PM |
| 17 | Dirty/wrinkled | Nov 9, 2011 9:06 AM |
| 18 | I wash them regularly...to have clean shirts...? | Nov 9, 2011 7:52 AM |
| 19 | I wore it. | Nov 8, 2011 6:19 PM |
| 20 | Smell and wrinkled | Nov 8, 2011 5:28 PM |
| 21 | always wash after any wear | Nov 8, 2011 4:49 PM |
| 22 | habit | Nov 8, 2011 10:29 AM |

**Page 49, Q110. What is the number one reason for having your dress shirt cleaned?**

| | | |
|---|---|---|
| 1 | Has been worn. | Nov 10, 2011 7:57 AM |

**Page 50, Q112. How often do you have your dress shirts cleaned?**

| | | |
|---|---|---|
| 1 | 4 | Nov 8, 2011 7:47 AM |

| Page 50, Q112. How often do you have your dress shirts cleaned? | | |
|---|---|---|

| Page 51, Q116. What is the number one reason for having your dress shirt cleaned? | | |
|---|---|---|
| 1 | I just don't want to wear a shirt more than twice without cleaning. | Nov 10, 2011 8:49 AM |
| 2 | I've worn it | Nov 9, 2011 8:47 AM |

| Page 52, Q118. How often do you have your dress shirts cleaned? | | |
|---|---|---|
| 1 | Rarely | Nov 10, 2011 8:07 AM |

| Page 52, Q119. What is the number one reason for having your dress shirt cleaned? | | |
|---|---|---|
| 1 | It's been worn | Nov 9, 2011 4:43 PM |
| 2 | The cleaners starches my shirts | Nov 9, 2011 8:28 AM |
| 3 | Like clean shirts | Nov 8, 2011 3:46 PM |

| Page 54, Q124. How often do you have your dress shirts cleaned? | | |
|---|---|---|
| 1 | Depends on wear and humidity | Nov 10, 2011 11:26 AM |

| Page 56, Q127. What was your top reason(s) for returning a dress shirt? (select up to 2 choices) | | |
|---|---|---|
| 1 | Just a personal change of opinion after purchasing. | Nov 9, 2011 7:37 PM |

***Page 114.*** Quantitative Survey

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***Page 115.*** Quantitative Survey

*Private data on this page.*
***Page 116.*** Quantitative Survey

*Private data on this page.*
***Page 117.*** Quantitative Survey

*Private data on this page.*
***Page 118.*** Quantitative Survey

*Private data on this page.*
***Page 119.*** Quantitative Survey

*Private data on this page.*
***Page 120.*** Quantitative Survey

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***Page 121.*** Quantitative Survey

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***Page 122.*** Quantitative Survey

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***Page 123.*** Quantitative Survey

# Appendix D

**Experiment I: Acquisition Survey Results**
Results gathered by SurveyMoney for the acquisition phase of the study are listed below. They are broken into three different sets of surveys: MM (10), CT (13), and MP (21). Also included are responses to "Optional Questions" section of the survey. Note that there are more respondents for Experiment I survey, than participants as several dropped out during this stage of the study.

MM Survey (10 Respondents)

**1. Please provide your contact information. We will not share this individual data with anyone. We will only present results from the study in the aggregate at the end of the study. Please enter your name.**

| | Response Count |
|---|---|
| | 10 |
| answered question | 10 |
| skipped question | 0 |

**2. Please enter your email address.**

| | Response Count |
|---|---|
| | 10 |
| answered question | 10 |
| skipped question | 0 |

***Page 1.*** MM Acquisition Survey

**3. What was your general strategy for designing the shirt online? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was looking to design a shirt that was similar to what I already have in my wardrobe | 40.0% | 4 |
| **I was looking to design something unique relative to my existing wardrobe** | **60.0%** | **6** |
| I was looking for a particular color and fabric range | 20.0% | 2 |
| I admired a similar shirt on another person, and I was looking to emulate that design | 0.0% | 0 |
| I had no preconceived strategy | 30.0% | 3 |
| Other (please specify) | 10.0% | 1 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

***Page 2.*** MM Acquisition Survey

**4. Which of the following factors were influential in the decisions you made when designing your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| The website showed designs that I thought were nice to emulate | 40.0% | 4 |
| I knew that my significant other would appreciate certain colors and features so I chose those | 0.0% | 0 |
| I was under time pressure, so I just picked the first decent one | 0.0% | 0 |
| My office has a dress code/norm, so I designed a shirt that would work well for the office | 40.0% | 4 |
| No other factors | 10.0% | 1 |
| **Other (please specify)** | **50.0%** | **5** |
| | **answered question** | **10** |
| | **skipped question** | **0** |

***Page 3.*** MM Acquisition Survey

**5. How much total time did you spend on the website designing your shirt?**

| | Response Percent | Response Count |
|---|---|---|
| 5 - 10 min | 0.0% | 0 |
| 11 - 15 min | 20.0% | 2 |
| **16 - 20 min** | **50.0%** | **5** |
| 21 - 30 min | 30.0% | 3 |
| 31 - 45 min | 0.0% | 0 |
| 46 - 60 min | 0.0% | 0 |
| 60+ min | 0.0% | 0 |
| **answered question** | | **10** |
| **skipped question** | | **0** |

**6. Over how many days did you spend on designing this shirt? (For example, you might have gone to website one day, explored the design space, and went back to the site the following day to purchase)**

| | Response Percent | Response Count |
|---|---|---|
| **I did it all within 1 day** | **60.0%** | **6** |
| It stretched into 2 days | 30.0% | 3 |
| It stretched into 3 days | 10.0% | 1 |
| It stretched into 4 days | 0.0% | 0 |
| It stretched into 5+ days | 0.0% | 0 |
| **answered question** | | **10** |
| **skipped question** | | **0** |

***Page 4.*** MM Acquisition Survey

**7. Please rate the following characteristics in order of importance when designing dress shirt. (You may select more than one feature as being 'Most Important')**

| | Most Important | Important | No Opinion | Not Important | Least Important | Response Count |
|---|---|---|---|---|---|---|
| Fabric material (cotton, linen, silk, synthetic, etc.) | 30.0% (3) | **70.0% (7)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 10 |
| Collar style | 20.0% (2) | **70.0% (7)** | 0.0% (0) | 10.0% (1) | 0.0% (0) | 10 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 10.0% (1) | **30.0% (3)** | 0.0% (0) | **30.0% (3)** | **30.0% (3)** | 10 |
| Buttons | 0.0% (0) | **70.0% (7)** | 10.0% (1) | 20.0% (2) | 0.0% (0) | 10 |
| Monogram | 0.0% (0) | 10.0% (1) | 10.0% (1) | 20.0% (2) | **60.0% (6)** | 10 |
| Fabric color/pattern | **60.0% (6)** | 40.0% (4) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 10 |
| Cuff style | 0.0% (0) | **80.0% (8)** | 0.0% (0) | 10.0% (1) | 10.0% (1) | 10 |
| Size/dimension | **50.0% (5)** | 40.0% (4) | 10.0% (1) | 0.0% (0) | 0.0% (0) | 10 |
| Shoulder style | 0.0% (0) | **50.0% (5)** | 20.0% (2) | 20.0% (2) | 10.0% (1) | 10 |
| | | | | | **answered question** | **10** |
| | | | | | **skipped question** | **0** |

**8. How many different fabric options did you examine?**

| | Response Percent | Response Count |
|---|---|---|
| 1 - 5 | **50.0%** | **5** |
| 5 - 10 | 10.0% | 1 |
| 10 - 20 | 30.0% | 3 |
| 21+ | 10.0% | 1 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

**9. Which of the following were part of your process for choosing a fabric? (Select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| **I examined all of the options before choosing** | **60.0%** | **6** |
| I chose the first fabric that looked appealing | 20.0% | 2 |
| I browsed pre-made shirts that were promoted on the Blank Label website | 10.0% | 1 |
| I browsed pre-made shirts that were promoted elsewhere | 0.0% | 0 |
| I narrowed the selection down to a smaller number of choices based on pre-determined criteria (e.g.,color, pattern, shirts I already own, etc.) | 50.0% | 5 |
| Other (please specify) | 10.0% | 1 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

***Page 6.*** MM Acquisition Survey

## 10. How long did you spend choosing your fabric?

| | Response Percent | Response Count |
|---|---|---|
| 1 min | 10.0% | 1 |
| 2 - 5 min | 20.0% | 2 |
| **6 - 10 min** | **40.0%** | **4** |
| 11 - 20 min | 30.0% | 3 |
| 21 - 30 min | 0.0% | 0 |
| 31+ min | 0.0% | 0 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

## 11. How many different collar designs did you consider?

| | Response Percent | Response Count |
|---|---|---|
| 1 | 10.0% | 1 |
| **2** | **80.0%** | **8** |
| 3 - 5 | 10.0% | 1 |
| 6+ | 0.0% | 0 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

***Page 7.*** MM Acquisition Survey

## 12. What was the process for choosing your collar design? (please select all that apply)

| | Response Percent | Response Count |
|---|---|---|
| I knew in advance the specific collar that I wanted | 30.0% | 3 |
| **I chose a collar that was similar to what I had in my wardrobe** | **50.0%** | **5** |
| I chose a collar different to ones on shirts that I already owned | 10.0% | 1 |
| I chose the first collar that looked appealing | 20.0% | 2 |
| I chose a collar that was featured/displayed on the Blank Label website | 0.0% | 0 |
| I chose a collar that was featured/displayed elsewhere | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

## 13. Did you consider a collar with contrasting fabric?

| | Response Percent | Response Count |
|---|---|---|
| Yes | 40.0% | 4 |
| **No** | **60.0%** | **6** |
| | **answered question** | **10** |
| | **skipped question** | **0** |

***Page 8.*** MM Acquisition Survey

## 14. How many different fabrics did you consider for your contrast collar?

| | Response Percent | Response Count |
|---|---|---|
| 1 | 25.0% | 1 |
| 2 | 25.0% | 1 |
| **3 - 5** | **50.0%** | **2** |
| 6 - 10 | 0.0% | 0 |
| 11+ | 0.0% | 0 |
| | **answered question** | **4** |
| | **skipped question** | **6** |

## 15. How much time did you spend looking at contrast collar fabrics?

| | Response Percent | Response Count |
|---|---|---|
| 1 min | 25.0% | 1 |
| **2 min** | **50.0%** | **2** |
| 3 - 5 min | 0.0% | 0 |
| 6 - 10 min | 25.0% | 1 |
| 11+ min | 0.0% | 0 |
| | **answered question** | **4** |
| | **skipped question** | **6** |

**16. How many different placket designs did you consider? (If you don't know what a placket is, the image below demonstrates the three options)**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 60.0% | 6 |
| 2 | 30.0% | 3 |
| 3 | 10.0% | 1 |
| 4 | 0.0% | 0 |
| answered question | | 10 |
| skipped question | | 0 |

**17. How many different cuff designs did you consider?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 30.0% | 3 |
| 2 | 50.0% | 5 |
| 3 | 20.0% | 2 |
| 4+ | 0.0% | 0 |
| answered question | | 10 |
| skipped question | | 0 |

***Page 10.*** MM Acquisition Survey

## 18. What was your process for choosing your cuff design? (select all that apply)

| | Response Percent | Response Count |
|---|---|---|
| I knew in advance the specific cuff that I wanted | 40.0% | 4 |
| **I chose a cuff that was similar to what I had in my wardrobe** | **80.0%** | **8** |
| I chose a cuff different to ones on shirts that I already owned | 10.0% | 1 |
| I chose the first cuff that looked appealing | 10.0% | 1 |
| I chose a cuff that was featured/displayed on the Blank Label website | 0.0% | 0 |
| I chose a cuff that was featured/displayed elsewhere | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

## 19. Did you consider a contrast cuff (cuff with a different inner lining)?

| | Response Percent | Response Count |
|---|---|---|
| Yes | 30.0% | 3 |
| **No** | **70.0%** | **7** |
| | **answered question** | **10** |
| | **skipped question** | **0** |

## 20. How much time did you spend looking at fabrics for the contrast cuff?

| | Response Percent | Response Count |
|---|---|---|
| 1 min | 0.0% | 0 |
| 2 min | 33.3% | 1 |
| **3 - 5 min** | **66.7%** | **2** |
| 6 - 10 min | 0.0% | 0 |
| 11+ min | 0.0% | 0 |
| | **answered question** | **3** |
| | **skipped question** | **7** |

## 21. How many different fabrics did you consider for your contrast cuff?

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| **2** | **33.3%** | **1** |
| **3 - 5** | **33.3%** | **1** |
| **6 - 10** | **33.3%** | **1** |
| 11+ | 0.0% | 0 |
| | **answered question** | **3** |
| | **skipped question** | **7** |

## 22. How many different button designs did you consider?

| | Response Percent | Response Count |
|---|---|---|
| 1 | 40.0% | 4 |
| **2** | **50.0%** | **5** |
| 3 - 5 | 10.0% | 1 |
| 6+ | 0.0% | 0 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

## 23. What was the process for choosing your button design? (select all that apply)

| | Response Percent | Response Count |
|---|---|---|
| I knew in advance the specific button that I wanted | 0.0% | 0 |
| **I chose a button that was similar to what I had in my wardrobe** | **50.0%** | **5** |
| I chose a button different to ones on shirts that I already owned | 10.0% | 1 |
| I chose the first button that looked appealing | 40.0% | 4 |
| I chose a button that was featured/displayed on the Blank Label website | 0.0% | 0 |
| I chose a button that was featured/displayed elsewhere | 0.0% | 0 |
| Other (please specify) | 10.0% | 1 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

***Page 13.*** MM Acquisition Survey

**24. How many different shoulder designs did you consider?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 80.0% | 8 |
| 2 | 10.0% | 1 |
| 3 | 10.0% | 1 |
| 4 | 0.0% | 0 |
| answered question | | 10 |
| skipped question | | 0 |

**25. How much time did you spend selecting your shoulder design?**

| | Response Percent | Response Count |
|---|---|---|
| 1 min | 80.0% | 8 |
| 2 min | 20.0% | 2 |
| 3 - 5 min | 0.0% | 0 |
| 6 - 10 min | 0.0% | 0 |
| 11+ min | 0.0% | 0 |
| answered question | | 10 |
| skipped question | | 0 |

***Page 14.*** MM Acquisition Survey

**26. How many different shirt designs (complete designs) did you generate before selecting a particular one?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 40.0% | 4 |
| 2 | 50.0% | 5 |
| 3 - 5 | 10.0% | 1 |
| 6 - 10 | 0.0% | 0 |
| 11+ | 0.0% | 0 |
| answered question | | 10 |
| skipped question | | 0 |

**27. Did you use the online help tools? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Smart measurement tools | 60.0% | 6 |
| Help box | 20.0% | 2 |
| Hint box | 30.0% | 3 |
| Comparable sizing | 20.0% | 2 |
| None | 30.0% | 3 |
| Other (please specify) | 10.0% | 1 |
| answered question | | 10 |
| skipped question | | 0 |

**28. Please rate the following sizing methods that you used to determine your dress shirt measurements. (You must select one option per row. If you did not use one or any of these options, select 'Did not use')**

| | Most useful | Somewhat useful | Did not use | Less useful | Least useful | Response Count |
|---|---|---|---|---|---|---|
| I entered exact measurements | **50.0% (5)** | 20.0% (2) | 30.0% (3) | 0.0% (0) | 0.0% (0) | 10 |
| I used "ask our tailors" | **40.0% (4)** | 20.0% (2) | 30.0% (3) | 10.0% (1) | 0.0% (0) | 10 |
| I measured my best-fitting shirt | 30.0% (3) | 20.0% (2) | **50.0% (5)** | 0.0% (0) | 0.0% (0) | 10 |
| I sent in one of my shirts for a measurement | 0.0% (0) | 0.0% (0) | **90.0% (9)** | 0.0% (0) | 10.0% (1) | 10 |
| Other method (please specify below) | 0.0% (0) | 0.0% (0) | **88.9% (8)** | 0.0% (0) | 11.1% (1) | 9 |
| | | | | | Other (please specify here) | 0 |
| | | | | | **answered question** | **10** |
| | | | | | **skipped question** | **0** |

***Page 16.*** MM Acquisition Survey

## 29. How much time did you spend on sizing?

| | Response Percent | Response Count |
|---|---|---|
| 2 min | 10.0% | 1 |
| 3 - 5 min | 20.0% | 2 |
| **6 - 10 min** | **40.0%** | **4** |
| 11 - 15 min | 30.0% | 3 |
| 16 - 20 min | 0.0% | 0 |
| 21 - 30 min | 0.0% | 0 |
| 31 - 45 min | 0.0% | 0 |
| 46 - 60 min | 0.0% | 0 |
| 61+ min | 0.0% | 0 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

## 30. Were you confident about the fit without the opportunity to physically try on the shirt?

| | Response Percent | Response Count |
|---|---|---|
| Yes | 40.0% | 4 |
| **No** | **60.0%** | **6** |
| | **answered question** | **10** |
| | **skipped question** | **0** |

**31. Did anyone assist you in acquiring your made-to-measure shirt? (Acquiring includes designing the shirt or final purchasing decisions)**

| | Response Percent | Response Count |
|---|---|---|
| Yes, someone assisted me | 30.0% | 3 |
| **No, no one assisted me in acquiring the shirt** | **70.0%** | **7** |
| **answered question** | | **10** |
| **skipped question** | | **0** |

**32. Who helped you design your dress shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Family member | 0.0% | 0 |
| **Spouse** | **66.7%** | **2** |
| Partner | 0.0% | 0 |
| Friend | 0.0% | 0 |
| Significant other | 0.0% | 0 |
| Colleague | 0.0% | 0 |
| Other (please specify) | 33.3% | 1 |
| **answered question** | | **3** |
| **skipped question** | | **7** |

***Page 18.*** MM Acquisition Survey

## 33. What decisions did they help you make? (please select all that apply)

| | Response Percent | Response Count |
|---|---|---|
| They assisted me with taking measurements | 33.3% | 1 |
| They helped me select options during the design process (contrast fabrics, plackets, cuffs, buttons, etc) | 33.3% | 1 |
| **They provided feedback on a completed shirt(s) at the end of the design process** | **66.7%** | **2** |
| They made the final decision of what to order | 0.0% | 0 |
| They did everything, I didn't make any decisions | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **3** |
| | **skipped question** | **7** |

## 34. Did you consider your wardrobe when designing this new shirt?

| | Response Percent | Response Count |
|---|---|---|
| **Yes, I considered my existing wardrobe** | **70.0%** | **7** |
| No, I did not consider my existing wardrobe | 30.0% | 3 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

**35. In particular, what item(s) within your wardrobe were you considering when designing the new shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Pants | 57.1% | 4 |
| Suits | 28.6% | 2 |
| Shoes | 42.9% | 3 |
| Jackets | 28.6% | 2 |
| Ties | 28.6% | 2 |
| Socks | 0.0% | 0 |
| Cuff links | 14.3% | 1 |
| Other (please specify) | 28.6% | 2 |
| | answered question | 7 |
| | skipped question | 3 |

***Page 20.*** MM Acquisition Survey

**36. Why did you not consider your existing wardrobe when designing the new shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was planning to buy new clothing to match it | 0.0% | 0 |
| **I don't coordinate my clothing** | **66.7%** | **2** |
| I don't typically buy my own clothing, so it wasn't a consideration | 33.3% | 1 |
| This was a free shirt, so it didn't really matter | 33.3% | 1 |
| Other (please specify) | 33.3% | 1 |
| | **answered question** | **3** |
| | **skipped question** | **7** |

**37. Did you move through the design process in a linear fashion, or did a later design decision that you made cause you to go back and change earlier decisions?**

| | Response Percent | Response Count |
|---|---|---|
| **Yes, after designing later parts I went back to revise earlier design choices that I had made** | **80.0%** | **8** |
| No, I did not go back to revise any part of my shirt | 20.0% | 2 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

**36. Why did you not consider your existing wardrobe when designing the new shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was planning to buy new clothing to match it | 0.0% | 0 |
| **I don't coordinate my clothing** | **66.7%** | **2** |
| I don't typically buy my own clothing, so it wasn't a consideration | 33.3% | 1 |
| This was a free shirt, so it didn't really matter | 33.3% | 1 |
| Other (please specify) | 33.3% | 1 |
| | **answered question** | **3** |
| | **skipped question** | **7** |

**37. Did you move through the design process in a linear fashion, or did a later design decision that you made cause you to go back and change earlier decisions?**

| | Response Percent | Response Count |
|---|---|---|
| **Yes, after designing later parts I went back to revise earlier design choices that I had made** | **80.0%** | **8** |
| No, I did not go back to revise any part of my shirt | 20.0% | 2 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

***Page 22.*** MM Acquisition Survey

## 39. What was the reason for making a change? (Select all that apply)

| | Response Percent | Response Count |
|---|---|---|
| **Color matching (i.e., matching the main body color and accent color)** | **62.5%** | **5** |
| When I was nearly finished with the design, I felt the whole design needed some tweaking. | 37.5% | 3 |
| I realized that I should adhere the work dress code | 0.0% | 0 |
| I was influenced by the opinions of family/friends during the design process | 0.0% | 0 |
| Other (please specify) | 37.5% | 3 |
| | **answered question** | **8** |
| | **skipped question** | **2** |

## 40. Would you have purchased a similar shirt with your own money?

| | Response Percent | Response Count |
|---|---|---|
| **Yes** | **70.0%** | **7** |
| No | 30.0% | 3 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

## 41. What is the estimated price you typically pay for a dress shirt?

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20 - $39 | 20.0% | 2 |
| **$40 - $59** | **50.0%** | **5** |
| $60 - $99 | 10.0% | 1 |
| $100 - $199 | 10.0% | 1 |
| more than $200 | 10.0% | 1 |
| | **answered question** | **10** |
| | **skipped question** | **0** |

## 42. Please indicate the accurateness of the following statements in regards to your overall online experience.

| | Strongly Agree | Agree | Neither agree nor disagree | Disagree | Strong disagree | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| I designed a shirt that I probably would not have chosen at a conventional store | 11.1% (1) | 11.1% (1) | **44.4% (4)** | 22.2% (2) | 11.1% (1) | 1.00 | 9 |
| This process required less effort than shopping at a store | 10.0% (1) | **50.0% (5)** | 0.0% (0) | 30.0% (3) | 10.0% (1) | 1.00 | 10 |
| I would use this process for subsequent orders | 20.0% (2) | **50.0% (5)** | 30.0% (3) | 0.0% (0) | 0.0% (0) | 1.00 | 10 |
| I am confident with my shirt design/aesthetics without physically touching/seeing my design | 20.0% (2) | 10.0% (1) | 20.0% (2) | **50.0% (5)** | 0.0% (0) | 1.00 | 10 |
| | | | | | **answered question** | | **10** |
| | | | | | **skipped question** | | **0** |

***Page 24.*** MM Acquisition Survey

**43. Optional question: In 1-2 paragraphs describe your general experience with the online design process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | Response Count |
|---|---|
| | 9 |
| answered question | 9 |
| skipped question | 1 |

**44. How happy do you anticipate that you will be with your new made-to-measure shirt? 1= Most satisfied; 5=Least satisfied**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 20.0% | 2 |
| 2 | 30.0% | 3 |
| 3 | 40.0% | 4 |
| 4 | 0.0% | 0 |
| 5 | 10.0% | 1 |
| answered question | | 10 |
| skipped question | | 0 |

***Page 25.*** MM Acquisition Survey

*Private data on this page.*

***Page 26.*** MM Acquisition Survey

| Page 3, Q3. What was your general strategy for designing the shirt online? (select all that apply) | | |
|---|---|---|
| 1 | I wanted a great fit and to explore the service | Mar 5, 2012 8:25 AM |

| Page 3, Q4. Which of the following factors were influential in the decisions you made when designing your shirt? (select all that apply) | | |
|---|---|---|
| 1 | there was a range of fabrics, but not as many as I'd hoped for. I felt quite limited, actually, looking for a base of white with a blue professional pattern/design on it. | Mar 11, 2012 11:23 PM |
| 2 | want a stylish interesting shirt, but not too wild | Mar 5, 2012 8:25 AM |
| 3 | Reproduce a shirt I used to have. | Mar 4, 2012 6:35 AM |
| 4 | fabric and color | Mar 1, 2012 8:44 AM |
| 5 | designing something similar to fasions I've seen in stores but thought would not fit me | Mar 1, 2012 8:40 AM |

| Page 5, Q9. Which of the following were part of your process for choosing a fabric? (Select all that apply) | | |
|---|---|---|
| 1 | I don't recall picking a fabric, just a color. I am concerned I got the wrong fabric. | Mar 4, 2012 6:39 AM |

***Page 27.*** MM Acquisition Survey

| Page 5, Q9. Which of the following were part of your process for choosing a fabric? (Select all that apply) | | |
|---|---|---|
| | Anyway, the answers to #8 and #10 should be "zero", I guess. | |

| Page 11, Q23. What was the process for choosing your button design? (select all that apply) | | |
|---|---|---|
| 1 | Chose a button that looked good with the fabric | Mar 5, 2012 8:31 AM |

| Page 13, Q27. Did you use the online help tools? (please select all that apply) | | |
|---|---|---|
| 1 | Wanted help but did not see the help tool | Mar 5, 2012 8:32 AM |

| Page 17, Q32. Who helped you design your dress shirt? (select all that apply) | | |
|---|---|---|
| 1 | someone from the company had questions about the exact measurements I had entered to clarify | Mar 1, 2012 8:45 AM |

| Page 19, Q35. In particular, what item(s) within your wardrobe were you considering when designing the new shirt? (select all that apply) | | |
|---|---|---|
| 1 | Other shirts. Did not want anything too similar | Mar 5, 2012 8:34 AM |
| 2 | Other shirts that I own | Mar 4, 2012 6:45 AM |

| Page 20, Q36. Why did you not consider your existing wardrobe when designing the new shirt? (select all that apply) | | |
|---|---|---|
| 1 | I wanted a shirt neutral to my existing pants | Mar 1, 2012 8:31 AM |



| Page 22, Q39. What was the reason for making a change? (Select all that apply) | | |
|---|---|---|
| 1 | checked other web site to see if monograms were (forgive me for saying) pretentious or not. :) | Mar 11, 2012 11:29 PM |
| 2 | I felt I put in a too-short shirt size (the one I used as a reference was likely on the shorter end) | Mar 9, 2012 7:40 AM |
| 3 | Found the interface confusing. Realized I had options too late | Mar 5, 2012 8:35 AM |

| Page 24, Q43. Optional question: In 1-2 paragraphs describe your general experience with the online design process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?) | | |
|---|---|---|
| 1 | This is the first time I order clothing online. If all goes well, perhaps I'll feel more confident about doing it in the future. | Mar 13, 2012 6:39 AM |
| 2 | I loved it at first - playing with the designs, configuration options, etc was a blast. Then, as I got to the end, I realized that I would actually have to wear the shirt I made and that it cost $100, so it should be something I would actually like and wear regularly. That meant I needed to reduce the risk of it being "weird" in any way, so I went back and made more conservative choices. I did add a message to my inside collar - that seems like it will be a cool custom "secret" that only I know is there. I like that. The sizing process was also tough. I don't have any shirts that are perfect fits, so I asked for help. I was given specific sizes that I went with, but I am still waiting for the results. Fingers crossed! | Mar 11, 2012 11:34 PM |
| 3 | it was easy, fun, and no hassle. I did have to call in and make sure I had the right shirt sleeve length, and the associate on the phone was very helpful. | Mar 9, 2012 7:41 AM |
| 4 | The User Interface needs work. I would have like to have browsed sample designs before beginning my design. I did not notice all of the options on the first pass and then found it hard to go back without undoing other selections. I am not confident in my measures. I was disappointed in the numeber of fabric choices and perplexed by the marked cost differences. Once I get a shirt that fits however, I'd be very likely to order another. The design process is fun. | Mar 5, 2012 8:39 AM |
| 5 | I enjoyed the process. Some doubt over my shirt size, (eg arm length) but no more so than looking at packaged shirts in the store. I think I want to be able to control the fabric type and color individually, but not sure I could that. | Mar 4, 2012 6:54 AM |
| 6 | It was a lot of fun -- trying different fabrics and making other choices. I definitely couldn't have found the same exact combination in a conventional store. | Mar 1, 2012 11:28 AM |
| 7 | too limited | Mar 1, 2012 8:53 AM |
| 8 | I wasn't a huge fan of the UI. I thought it a little clunky and could have been more useful with pop-up descriptions versus breaking the flow of my decisions. I also strongly question the accurateness of the color of the fabric (based on the description) on screen. | Mar 1, 2012 8:50 AM |
| 9 | The sizing tools were helpful. The process was easy an d I felt that by "designing" the shirt myself I was getting a shirt unique for me. | Mar 1, 2012 8:35 AM |

***Page 30.*** MM Acquisition Survey

CT Survey (12 Respondents)

**1. Please provide your contact information. We will not share this individual data with anyone. We will only present results from the study in the aggregate at the end of the study. Please enter your name.**

| | Response Count |
|---|---|
| | 12 |
| answered question | 12 |
| skipped question | 1 |

**2. Please enter your email address.**

| | Response Count |
|---|---|
| | 12 |
| answered question | 12 |
| skipped question | 1 |

***Page 1.*** CT Acquisition Survey

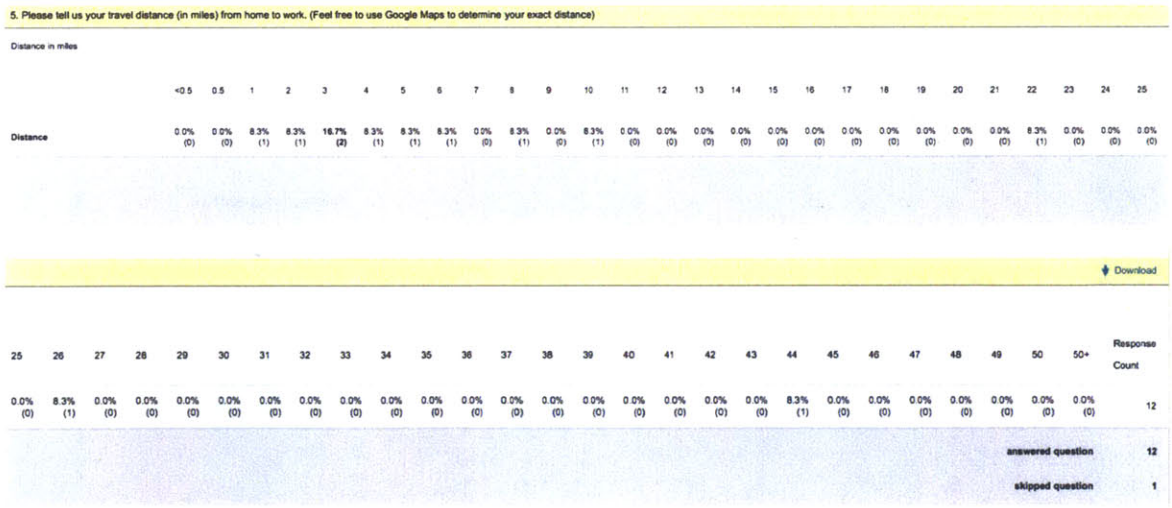
**3. Entering your custom shirt consultation, what was your general design strategy? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was looking to design a shirt that is similar to what I already have in my wardrobe | 8.3% | 1 |
| **I was looking to design something unique relative to my existing wardrobe** | **66.7%** | **8** |
| I admired a similar shirt on another person, and I was looking to emulate that design | 0.0% | 0 |
| I was looking for a particular color and fabric range | 16.7% | 2 |
| I had no preconceived strategy | 33.3% | 4 |
| Other (please specify) | 8.3% | 1 |
| | **answered question** | **12** |
| | **skipped question** | **1** |

***Page 2.*** CT Acquisition Survey

**4. Which of the following factors were influential in the decisions you made when designing your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| My consultant was very convincing and/or influential | 58.3% | 7 |
| I knew that my significant other would appreciate certain colors and features, so I chose those | 8.3% | 1 |
| I was under time pressure, so I just picked the first decent one | 33.3% | 4 |
| My office has a dress code/norm, so I designed a shirt that would work well for the office | 50.0% | 6 |
| No other factors | 8.3% | 1 |
| Other (please specify) | 41.7% | 5 |
| answered question | | 12 |
| skipped question | | 1 |




***Page 3.*** CT Acquisition Survey

**6. What mode of transportation do you normally take to the office?**

| | Response Percent | Response Count |
|---|---|---|
| Walk | 0.0% | 0 |
| Public transit | 58.3% | 7 |
| Automobile | 25.0% | 3 |
| Bicycle | 8.3% | 1 |
| Car pool | 0.0% | 0 |
| Other (please specify) | 8.3% | 1 |
| answered question | | 12 |
| skipped question | | 1 |

**7. Please specify what vehicle you drove.**

| | Response Percent | Response Count |
|---|---|---|
| Make | 100.0% | 3 |
| Model | 100.0% | 3 |
| Year | 100.0% | 3 |
| answered question | | 3 |
| skipped question | | 10 |

***Page 4.*** CT Acquisition Survey

**8. How much time did you spend meeting with your consultant?**

| | Response Percent | Response Count |
|---|---|---|
| 5 - 10 min | 0.0% | 0 |
| 11 - 20 min | 33.3% | 4 |
| 21- 30 min | 41.7% | 5 |
| 31 - 45 min | 25.0% | 3 |
| 45+ min | 0.0% | 0 |
| answered question | | 12 |
| skipped question | | 1 |

***Page 5.*** CT Acquisition Survey

**9. Please rate the level of importance for all of the following features of your custom tailored shirt. (You may select more than one feature as being 'Most Important')**

| | Most Important | Important | No Opinion | Not Important | Least Important | Response Count |
|---|---|---|---|---|---|---|
| Fabric material (cotton, linen, silk, synthetic, etc.) | 25.0% (3) | **58.3% (7)** | 16.7% (2) | 0.0% (0) | 0.0% (0) | 12 |
| Collar style | 8.3% (1) | **83.3% (10)** | 0.0% (0) | 8.3% (1) | 0.0% (0) | 12 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 0.0% (0) | **50.0% (6)** | 25.0% (3) | 16.7% (2) | 8.3% (1) | 12 |
| Buttons | 0.0% (0) | **50.0% (6)** | 16.7% (2) | 25.0% (3) | 8.3% (1) | 12 |
| Monogram | 0.0% (0) | 16.7% (2) | 25.0% (3) | 16.7% (2) | **41.7% (5)** | 12 |
| Fabric color/pattern | **75.0% (9)** | 25.0% (3) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 12 |
| Cuff style | 8.3% (1) | **50.0% (6)** | 25.0% (3) | 8.3% (1) | 8.3% (1) | 12 |
| Size/dimension | **75.0% (9)** | 16.7% (2) | 8.3% (1) | 0.0% (0) | 0.0% (0) | 12 |
| Shoulder style | 0.0% (0) | 25.0% (3) | **41.7% (5)** | 25.0% (3) | 8.3% (1) | 12 |
| | | | | | **answered question** | 12 |
| | | | | | **skipped question** | 1 |

**10. How many different fabrics did you consider before finalizing your selection?**

| | Response Percent | Response Count |
|---|---|---|
| 1 - 2 | 33.3% | 4 |
| 3 - 5 | **50.0%** | 6 |
| 6 - 10 | 0.0% | 0 |
| 11+ | 16.7% | 2 |
| | **answered question** | 12 |
| | **skipped question** | 1 |

***Page 6.*** CT Acquisition Survey

**11. What was your process for choosing a fabric? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I examined all of the options before choosing | 25.0% | 3 |
| I chose the first fabric that looked appealing | 8.3% | 1 |
| I asked the consultant what looked good on me | 25.0% | 3 |
| **I narrowed the selection down to a smaller number of choices based on pre-determined criteria (e.g.,color, pattern, shirts I already own, etc.)** | **100.0%** | **12** |
| I chose a fabric that was similar to one I liked from another retailer (online or offline) | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **12** |
| | **skipped question** | **1** |

***Page 7.*** CT Acquisition Survey

**12. How much time did you spend choosing your fabric?**

| | Response Percent | Response Count |
|---|---|---|
| 1 min | 0.0% | 0 |
| 2 - 5 min | 16.7% | 2 |
| 6 - 10 min | 50.0% | 6 |
| 11 - 20 min | 25.0% | 3 |
| 21 - 30 min | 8.3% | 1 |
| 31+ min | 0.0% | 0 |
| answered question | | 12 |
| skipped question | | 1 |

**13. How many different collar designs did you consider?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 41.7% | 5 |
| 2 | 33.3% | 4 |
| 3 | 16.7% | 2 |
| 4+ | 8.3% | 1 |
| answered question | | 12 |
| skipped question | | 1 |

***Page 8.*** CT Acquisition Survey

**14. What was your process for choosing your collar design? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I knew in advance the specific collar that I wanted | 25.0% | 3 |
| **I chose the collar that the consultant suggested** | **50.0%** | **6** |
| I chose a collar different to ones on shirts that I already owned | 8.3% | 1 |
| I chose a collar that was similar to what I had in my wardrobe | 41.7% | 5 |
| I chose the first collar that looked appealing | 16.7% | 2 |
| I chose a fabric collar that was similar to one I liked from another retailer (online or offline) | 8.3% | 1 |
| Other (please specify) | 8.3% | 1 |
| | **answered question** | **12** |
| | **skipped question** | **1** |

**15. Did you consider an interior contrast fabric for your collar?**

| | Response Percent | Response Count |
|---|---|---|
| **Yes** | **66.7%** | **8** |
| No | 33.3% | 4 |
| | **answered question** | **12** |
| | **skipped question** | **1** |

***Page 9.*** CT Acquisition Survey

**16. How many different fabrics did you consider for your contrast collar?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| 2 | 62.5% | 5 |
| 3 - 5 | 25.0% | 2 |
| 6 - 10 | 0.0% | 0 |
| 11+ | 12.5% | 1 |
| answered question | | 8 |
| skipped question | | 5 |

**17. How much time did you spend choosing your contrast collar fabric?**

| | Response Percent | Response Count |
|---|---|---|
| 1 min | 0.0% | 0 |
| 2 min | 37.5% | 3 |
| 3 - 5 min | 25.0% | 2 |
| 6 - 10 min | 25.0% | 2 |
| 11+ min | 12.5% | 1 |
| answered question | | 8 |
| skipped question | | 5 |

***Page 10.*** CT Acquisition Survey

**18. How many different placket designs did you consider? (If you don't know what a placket is, the image below demonstrates three options)**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 41.7% | 5 |
| 2 | 50.0% | 6 |
| 3 | 8.3% | 1 |
| answered question | | 12 |
| skipped question | | 1 |

**19. How many different cuff designs did you consider?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 16.7% | 2 |
| 2 | 58.3% | 7 |
| 3 | 16.7% | 2 |
| 4+ | 8.3% | 1 |
| answered question | | 12 |
| skipped question | | 1 |

***Page 11.*** CT Acquisition Survey

**20. What was your process for choosing your cuff design? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I knew in advance in the specific type of cuff I wanted | 41.7% | 5 |
| I chose a cuff that the consultant recommend | 58.3% | 7 |
| I chose a cuff that was different to the ones on the shirts I already owned. | 16.7% | 2 |
| I chose a cuff that was similar to what I had in my wardrobe | 33.3% | 4 |
| I chose the first cuff that looked appealing | 8.3% | 1 |
| I chose a cuff that was similar to one I liked from another retailer (online or offline) | 8.3% | 1 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 12 |
| | skipped question | 1 |

**21. Did you consider a contrast cuff?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 66.7% | 8 |
| No | 33.3% | 4 |
| | answered question | 12 |
| | skipped question | 1 |

***Page 12.*** CT Acquisition Survey

**22. How many different fabrics did you consider for your contrast cuff?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 12.5% | 1 |
| 2 | 37.5% | 3 |
| 3 - 5 | 37.5% | 3 |
| 6 - 10 | 0.0% | 0 |
| 11+ | 12.5% | 1 |
| answered question | | 8 |
| skipped question | | 5 |

**23. How much time did you spend selecting your contrast fabric?**

| | Response Percent | Response Count |
|---|---|---|
| 1 min | 37.5% | 3 |
| 2 min | 25.0% | 2 |
| 3 - 5 min | 25.0% | 2 |
| 6 - 10 min | 0.0% | 0 |
| 11+ min | 12.5% | 1 |
| answered question | | 8 |
| skipped question | | 5 |

***Page 13.*** CT Acquisition Survey

**24. How many different button designs did you consider?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 41.7% | 5 |
| 2 | 50.0% | 6 |
| 3 - 5 | 8.3% | 1 |
| 6+ | 0.0% | 0 |
| answered question | | 12 |
| skipped question | | 1 |

**25. What was your process for choosing your buttons? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I knew in advance the specific button that I wanted | 8.3% | 1 |
| I chose the button that the consultant suggested | 83.3% | 10 |
| I chose a button different to ones on shirts that I already owned | 0.0% | 0 |
| I chose a button that was similar to what I had in my wardrobe | 16.7% | 2 |
| I chose the first button that looked appealing | 16.7% | 2 |
| I chose a button that was similar to one I liked from another retailer (online or offline) | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 12 |
| skipped question | | 1 |

***Page 14.*** CT Acquisition Survey

**26. How many different shoulder designs did you consider?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 100.0% | 12 |
| 2 | 0.0% | 0 |
| 3 | 0.0% | 0 |
| 4 | 0.0% | 0 |
| answered question | | 12 |
| skipped question | | 1 |

**27. How much time did you spend selecting your shoulder design?**

| | Response Percent | Response Count |
|---|---|---|
| 1 min | 100.0% | 12 |
| 2 min | 0.0% | 0 |
| 3 - 5 min | 0.0% | 0 |
| 6 - 10 min | 0.0% | 0 |
| 11+ min | 0.0% | 0 |
| answered question | | 12 |
| skipped question | | 1 |

***Page 15.*** CT Acquisition Survey

**28. Did you consider your wardrobe when shopping for this new custom tailored shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Yes, I considered my existing wardrobe | 91.7% | 11 |
| No, I did not consider my existing wardrobe | 8.3% | 1 |
| answered question | | 12 |
| skipped question | | 1 |

**29. In particular, what item(s) within your wardrobe were you considering when shopping for the new custom tailored shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Suits | 36.4% | 4 |
| Pants | 63.6% | 7 |
| Shoes | 18.2% | 2 |
| Jackets | 45.5% | 5 |
| Ties | 9.1% | 1 |
| Socks | 9.1% | 1 |
| Other (please specify) | 27.3% | 3 |
| answered question | | 11 |
| skipped question | | 2 |

***Page 16.*** CT Acquisition Survey

**30. Why did you not consider your existing wardrobe when shopping for the new custom tailored shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was planning to buy new clothing to match it | 0.0% | 0 |
| I don't coordinate my clothing | 0.0% | 0 |
| Normally, I don't buy my own clothing so it wasn't a consideration | 0.0% | 0 |
| This was a free shirt, so it didn't really matter | 0.0% | 0 |
| **Other (please specify)** | **100.0%** | **1** |
| | **answered question** | **1** |
| | **skipped question** | **12** |

**31. Did you move through the design process in a linear fashion, or did a later design decision that you made cause you to go back and change earlier decisions?**

| | Response Percent | Response Count |
|---|---|---|
| Yes, after designing later parts I went back to revise earlier design choices that I had made | 8.3% | 1 |
| **No, I did not go back to revise any part of my shirt** | **91.7%** | **11** |
| | **answered question** | **12** |
| | **skipped question** | **1** |

***Page 17.*** CT Acquisition Survey

**32. After which part(s) of the design process did you go back to make changes to previous decisions? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Buttons | 0.0% | 0 |
| Monogram | 0.0% | 0 |
| Fabric Material (cotton, linen, silk, synthetic, etc.) | 0.0% | 0 |
| Cuff style | 0.0% | 0 |
| Accent fabric pattern/color (cuff, color, placket, collar) | 100.0% | 1 |
| Collar style | 0.0% | 0 |
| Fabric color/pattern | 0.0% | 0 |
| Size/dimension | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 1 |
| | skipped question | 12 |

***Page 18.*** CT Acquisition Survey

**33. What was the reason for making a change? (Select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| **Color matching (i.e., matching the main body color and accent color)** | **100.0%** | **1** |
| When we nearly finished with the design, I felt the whole design needed some tweaking. | 0.0% | 0 |
| I realized that I should adhere the work dress code | 0.0% | 0 |
| I was influenced by the opinions of family/friends during the design process | 0.0% | 0 |
| During the design process the consultant made some recommendations that required changes to decisions we already made | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **1** |
| | **skipped question** | **12** |

**34. Would you have purchased a similar shirt with your own money?**

| | Response Percent | Response Count |
|---|---|---|
| **Yes** | **83.3%** | **10** |
| No | 16.7% | 2 |
| | **answered question** | **12** |
| | **skipped question** | **1** |

***Page 19.*** CT Acquisition Survey

**35. What is the estimated price that you pay for a typical shirt for work?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20 - $39 | 33.3% | 4 |
| $40 - $59 | 33.3% | 4 |
| $60 - $99 | 25.0% | 3 |
| $100 - $199 | 8.3% | 1 |
| more than $200 | 0.0% | 0 |
| answered question | | 12 |
| skipped question | | 1 |

**36. Please rate the following statements in regards to your overall design experience.**

| | Strongly Agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| My consultant recommended design choices that I would have not chosen myself. | 0.0% (0) | 33.3% (4) | 25.0% (3) | 33.3% (4) | 8.3% (1) | 1.00 | 12 |
| I mostly accepted my consultant's recommendations | 0.0% (0) | 100.0% (12) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 12 |
| I sought advise from the other customer in the room during the consultation. | 0.0% (0) | 33.3% (4) | 16.7% (2) | 16.7% (2) | 33.3% (4) | 1.00 | 12 |
| answered question | | | | | | | 12 |
| skipped question | | | | | | | 1 |

***Page 20.*** CT Acquisition Survey

**37. Optional question: In 1-2 paragraphs describe your general experience with the online design process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | Response Count |
|---|---|
| | 9 |
| answered question | 9 |
| skipped question | 4 |

**38. How happy do you anticipate that you will be with your new custom tailored shirt? 1= Most satisfied; 5=Least satisfied**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 33.3% | 4 |
| 2 | 50.0% | 6 |
| 3 | 8.3% | 1 |
| 4 | 8.3% | 1 |
| 5 | 0.0% | 0 |
| answered question | | 12 |
| skipped question | | 1 |

***Page 21.*** CT Acquisition Survey

*Private data on this page.*
***Page 22.*** CT Acquisition Survey

*Private data on this page.*
***Page 23.*** CT Acquisition Survey

**Page 3, Q3. Entering your custom shirt consultation, what was your general design strategy? (select all that apply)**

| | | |
|---|---|---|
| 1 | I was looking for guidance on fit/measurements. I had not been fitted for this type of shirt before (suits, tux, etc. - I have been). So I really want to see how a custom shirt fits/feels. | Mar 1, 2012 3:24 PM |

| Page 3, Q4. Which of the following factors were influential in the decisions you made when designing your shirt? (select all that apply) | | |
|---|---|---|
| 1 | I wanted something that I could wear to the office, but which would be a little more stylish when doing a video or being a panelist | Mar 6, 2012 6:59 AM |
| 2 | Wanted to choose a color/style that was missing from my wardrobe | Mar 2, 2012 9:05 AM |
| 3 | my own wants, likes, and taste | Mar 2, 2012 7:59 AM |
| 4 | Seeing the custom shirt on the tailor was helpful. I wish the swatches were both bigger and removable (so I could compare them easier). If I had more time, I would have taken it on the fabric (but I could have spent 3 hours on that -- almost too many choices and I wanted this shirt to be "awesome") | Mar 1, 2012 3:24 PM |
| 5 | I wanted to incorporate features I liked about my other custom shirts as well as explore some new ones | Mar 1, 2012 10:26 AM |

| Page 4, Q6. What mode of transportation do you normally take to the office? | | |
|---|---|---|
| 1 | Walk or Bike (seasonal) | Mar 2, 2012 9:08 AM |

***Page 24.*** CT Acquisition Survey

**Page 5, Q7. Please specify what vehicle you drove.**

| | | |
|---|---|---|
| | Make | |
| 1 | Toyota | Mar 2, 2012 8:01 AM |
| 2 | Subaru | Mar 1, 2012 3:25 PM |
| 3 | Toyota | Mar 1, 2012 1:07 PM |
| | Model | |
| 1 | Prius | Mar 2, 2012 8:01 AM |
| 2 | Outback | Mar 1, 2012 3:25 PM |
| 3 | Avalon | Mar 1, 2012 1:07 PM |
| | Year | |
| 1 | 2008 | Mar 2, 2012 8:01 AM |
| 2 | 2010 | Mar 1, 2012 3:25 PM |
| 3 | 2001 | Mar 1, 2012 1:07 PM |

**Page 8, Q14. What was your process for choosing your collar design? (please select all that apply)**

| | | |
|---|---|---|
| 1 | Chose a collar relative to the size of ties I usually wear | Mar 6, 2012 9:02 AM |

**Page 16, Q29. In particular, what item(s) within your wardrobe were you considering when shopping for the new custom tailored shirt? (select all that apply)**

| | | |
|---|---|---|
| 1 | other shirts - wanted a color that was not already represented in my wardrobe. | Mar 2, 2012 9:12 AM |
| 2 | my existing collection of shirt colors | Mar 1, 2012 3:28 PM |
| 3 | other shirts this was similar to | Mar 1, 2012 7:55 AM |

**Page 17, Q30. Why did you not consider your existing wardrobe when shopping for the new custom tailored shirt? (select all that apply)**

| | | |
|---|---|---|
| 1 | didn't think of it with a suit and tie. Colors I looked at would go with multiple pairs of pants I own | Mar 2, 2012 8:09 AM |

***Page 25.*** CT Acquisition Survey

**Page 21, Q37. Optional question: In 1-2 paragraphs describe your general experience with the online design process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | | |
|---|---|---|
| 1 | It was fun, although as the process progressed into details it became a little harder to keep the big picture in mind, i.e. so that a good choice in isolation would work with the overall intent. I think it would have been easier if I had explained the situations I wanted to wear the shirt in, and then had the consultant guide me within those parameters. | Mar 6, 2012 7:09 AM |
| 2 | I didn't do the online design process. I did the in person consult. It was fun. I would have appreciated seeing a few sample shirts--it was hard to visualize what the final shirt would look like, and I'm a little nervous whether I'll like the final product. Also, I didn't really love any of the fabrics--more color choice and more variety of texture/weave would have been good. | Mar 5, 2012 1:56 PM |
| 3 | I basically took the consultants recommendations, my wardrobe, and Fidelity's cultural norms and married them to design an original shirt that was somewhat different than the others in my wardrobe. I like not to have to think to much when buying clothes. It was nice to have the consultant do the thinking and I just say yes or no. I would say there are too many choices. Many of them are nearly the same and the nuances would be unrecognizable to 99% of the population. | Mar 2, 2012 9:33 PM |
| 4 | It was interesting, but i certainly felt "crunched" for time. Typically, i try to be mindful of a tailor's time, &, in this case, given the overall circumstances, i felt particularly sensitive to just moving the process along for the tailors. Invariably, with my own money, the time with the tailor would've been different, and i'd be more certain about my choice now. As it stands, i'm currently in a mode of, "i guess we'll see how it turns out" mode awaiting the tailored shirt. (BTW, this question notes the "online design process" but i worked with a tailor. | Mar 2, 2012 12:18 PM |
| 5 | It was enjoyable. I just don't have the time or money to buy my clothing this way. | Mar 2, 2012 8:11 AM |
| 6 | Did not design online... worked with the consultant in the room. | Mar 1, 2012 3:29 PM |
| 7 | I found the process fun. Ken was very helpful and informative. Overall I enjoyed the experiance. | Mar 1, 2012 1:12 PM |
| 8 | It was certainly fun, but it did feel a little rushed. I found the choice of patterns a little limited, especially in terms of colors; and it was hard to extrapolate from the swatch to imagine what a finished shirt would look like. The consultant was helpful when I found it difficult to make a decision. | Mar 1, 2012 8:59 AM |
| 9 | Did not do online design process | Mar 1, 2012 7:56 AM |

***Page 26.*** CT Acquisition Survey

MP Survey (21 Respondents)

**1. Please enter your name.**

| | Response Count |
|---|---|
| | 21 |
| **answered question** | **21** |
| **skipped question** | **0** |

**2. Please enter your email address.**

| | Response Count |
|---|---|
| | 21 |
| **answered question** | **21** |
| **skipped question** | **0** |

**3. In what mode(s) did you shop for your standard dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Online (website) | 14.3% | 3 |
| **Offline (retail store)** | **66.7%** | **14** |
| Both Online and Offline | 19.0% | 4 |
| **answered question** | | **21** |
| **skipped question** | | **0** |

***Page 1.*** MP Acquisition Survey

**4. While shopping, what was your strategy for choosing your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was looking to purchase a shirt that was similar to what I already have in my wardrobe | 33.3% | 1 |
| I was looking to purchase something completely different than what I already have in my wardrobe | 33.3% | 1 |
| I admired a similar shirt on another person and I was looking to find that style | 0.0% | 0 |
| I was looking to purchase a shirt in particular color and fabric range | 0.0% | 0 |
| I had no preconceived strategy | 0.0% | 0 |
| Other (please specify) | 66.7% | 2 |
| | answered question | 3 |
| | skipped question | 18 |

***Page 2.*** MP Acquisition Survey

**5. Which of the following factors were influential in the decisions you made when purchasing your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I knew that my significant other would appreciate certain colors and features so I chose those | 0.0% | 0 |
| The website showed designs that I thought were nice to emulate | 33.3% | 1 |
| **My office has a dress code/norm, so I designed a shirt that would work well for the office** | **100.0%** | **3** |
| I was under time pressure, so I just picked the first decent one I could find | 0.0% | 0 |
| No other factors | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **3** |
| | **skipped question** | **18** |

**6. How many websites did you visit during your online shopping process (including the one from where you purchased the new shirt)?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | **66.7%** | **2** |
| 2 | 0.0% | 0 |
| 3 | 0.0% | 0 |
| 4+ | 33.3% | 1 |
| | **answered question** | **3** |
| | **skipped question** | **18** |

***Page 3.*** MP Acquisition Survey

**7. Please enter the name of online website**

| | Response Count |
|---|---|
| | 2 |
| answered question | 2 |
| skipped question | 19 |

**8. What was your motivation for going to this website? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I have shopped there before | 50.0% | 1 |
| I found it through a search engine | 0.0% | 0 |
| I've bought from the physical store before, so the website would work for me | 50.0% | 1 |
| The website was easy to use and well designed | 50.0% | 1 |
| It is a well known website | 50.0% | 1 |
| A friend told me about it / my peers shop there | 50.0% | 1 |
| This website carries brands I like | 50.0% | 1 |
| This website received good reviews (product and/or service quality) | 50.0% | 1 |
| I saw advertising for this website | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 4.*** MP Acquisition Survey

**9. What was your process for choosing a shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I browsed the entire website | 0.0% | 0 |
| I used the help tools on the website | 0.0% | 0 |
| **I knew that I wanted a shirt in a particular range or brand (i.e., looking for a shirt in a color range)** | **100.0%** | **2** |
| I picked the first decent shirt that I came across | 0.0% | 0 |
| I looked at their top recommendations | 50.0% | 1 |
| I had someone help me with shopping and/or opinions | 0.0% | 0 |
| With no preconceived idea, I simply knew what I wanted when I saw it | 0.0% | 0 |
| I browsed the sales section first | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **2** |
| | **skipped question** | **19** |

***Page 5.*** MP Acquisition Survey

**10. How much time did you spend shopping at that website?**

| | Response Percent | Response Count |
|---|---|---|
| 5-10 min | 0.0% | 0 |
| **11-20 min** | **50.0%** | **1** |
| **21-30 min** | **50.0%** | **1** |
| 31-45 min | 0.0% | 0 |
| 46-60 min | 0.0% | 0 |
| 61+ min | 0.0% | 0 |
| | **answered question** | **2** |
| | **skipped question** | **19** |

**11. For all the following features, please rate the level of importance for why you selected your new standard shirt. (You may select more than one feature as being 'Most Important')**

| | Most Important | Important | No opinion | Not Important | Least Important | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| Fabric material (cotton, linen, silk, synthetic, etc.) | 50.0% (1) | 0.0% (0) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 0.0% (0) | 100.0% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Collar style | 0.0% (0) | 100.0% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Buttons | 0.0% (0) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 50.0% (1) | 1.00 | 2 |
| Fabric pattern/color | 100.0% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Cuff style | 0.0% (0) | 50.0% (1) | 0.0% (0) | 50.0% (1) | 0.0% (0) | 1.00 | 2 |
| Size/dimension | 100.0% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| | | | | | answered question | | 2 |
| | | | | | skipped question | | 19 |

**12. How many shirts did you look at on the website before deciding on one in particular?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| 2 | 0.0% | 0 |
| 3 - 5 | 100.0% | 2 |
| 6 - 10 | 0.0% | 0 |
| 11+ | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

**13. Did you purchase anything else on that website?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 0.0% | 0 |
| No | 100.0% | 2 |
| answered question | | 2 |
| skipped question | | 19 |

**14. What else did you purchase on the website? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Another shirt | 0.0% | 0 |
| Pants | 0.0% | 0 |
| Suit | 0.0% | 0 |
| Ties | 0.0% | 0 |
| Shoes | 0.0% | 0 |
| Cuff links or other accessories | 0.0% | 0 |
| Socks | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 0 |
| skipped question | | 21 |

***Page 8.*** MP Acquisition Survey

**15. Did anyone assist you while shopping for your new shirt online?**

| | Response Percent | Response Count |
|---|---|---|
| Yes, someone assisted me | 0.0% | 0 |
| No, no one assisted me | 100.0% | 2 |
| answered question | | 2 |
| skipped question | | 19 |

**16. Who helped you choose which shirt to purchase? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Family member | 0.0% | 0 |
| Spouse | 0.0% | 0 |
| Partner | 0.0% | 0 |
| Friend | 0.0% | 0 |
| Significant Other | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 0 |
| skipped question | | 21 |

***Page 9.*** MP Acquisition Survey

**17. What decisions did they help you make? (please select all that apply)?**

| | Response Percent | Response Count |
|---|---|---|
| They made the final decision of what to order | 0.0% | 0 |
| They provided feedback on my selection at the end of the process | 0.0% | 0 |
| They helped me select options during the shopping process | 0.0% | 0 |
| They did everything, I didn't make any decisions | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 21 |

**18. Did you consider your wardrobe when selecting this new standard shirt?**

| | | Response Percent | Response Count |
|---|---|---|---|
| Yes, I considered my existing wardrobe |  | 100.0% | 2 |
| No, I did not consider my existing wardrobe | | 0.0% | 0 |
| | | answered question | 2 |
| | | skipped question | 19 |

***Page 10.*** MP Acquisition Survey

**19. In particular, what item(s) within your wardrobe were you considering when shopping for the new standard shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Pants | 0.0% | 0 |
| Suits | 50.0% | 1 |
| Jackets | 0.0% | 0 |
| Shoes | 0.0% | 0 |
| Ties | 0.0% | 0 |
| Socks | 0.0% | 0 |
| Other (please specify) | 50.0% | 1 |
| answered question | | 2 |
| skipped question | | 19 |

**20. Why did you NOT consider your existing wardrobe when shopping for your new standard shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was planning to purchase new clothing to match it | 0.0% | 0 |
| I don't coordinate my clothing | 0.0% | 0 |
| Normally, I don't purchase my own clothing so it wasn't a consideration | 0.0% | 0 |
| This was a free shirt, so it didn't really matter | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 0 |
| skipped question | | 21 |

***Page 11.*** MP Acquisition Survey

**21. Would you have purchased a similar shirt with your own money?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 100.0% | 2 |
| No | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

**22. What is the estimated price that you typically pay for a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20 - $39 | 50.0% | 1 |
| $40 - $59 | 50.0% | 1 |
| $60 - $99 | 0.0% | 0 |
| $100 - $199 | 0.0% | 0 |
| more than $200 | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 12.*** MP Acquisition Survey

**23. Please rate the following statements in regards to your overall shopping experience.**

| | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| I was able to find a shirt comparable to the custom shirt that I already designed from earlier in the study | 50.0% (1) | 0.0% (0) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| I would rather shop online than to go to a physical store | 50.0% (1) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| I was not concerned about purchasing a shirt that I was unable to try on | 0.0% (0) | 100.0% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| | | | | | answered question | | 2 |
| | | | | | skipped question | | 19 |

**24. Optional question: In 1-2 paragraphs describe your general experience with the online purchasing process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | Response Count |
|---|---|
| | 2 |
| answered question | 2 |
| skipped question | 19 |

***Page 13.*** MP Acquisition Survey

**25. How happy do you anticipate to be with the shirt you purchased? 1 = most satisfied; 5 = least satisfied**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 100.0% | 2 |
| 2 | 0.0% | 0 |
| 3 | 0.0% | 0 |
| 4 | 0.0% | 0 |
| 5 | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

**26. Where else did you go? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Grocery store | 0.0% | 0 |
| Restaurant or fast food | 33.3% | 1 |
| Gas station | 0.0% | 0 |
| Home improvement (e.g., home depot) | 33.3% | 1 |
| Pharmacy or convenience store | 0.0% | 0 |
| Other (please specify) | 66.7% | 2 |
| answered question | | 3 |
| skipped question | | 18 |

***Page 14.*** MP Acquisition Survey

**27. Did you purchase something else on your trip?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 66.7% | 2 |
| No | 33.3% | 1 |
| answered question | | 3 |
| skipped question | | 18 |

**28. Please enter the name of online website where you purchased your shirt.**

| | Response Count |
|---|---|
| | 2 |
| answered question | 2 |
| skipped question | 19 |

***Page 15.*** MP Acquisition Survey

**29. What was your motivation for going to this website? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| **I have shopped there before** | **50.0%** | **1** |
| I found it through a search engine | 0.0% | 0 |
| I've bought from the physical store before, so the website would work for me | 0.0% | 0 |
| **The website was easy to use and well designed** | **50.0%** | **1** |
| It is a well known website | 0.0% | 0 |
| A friend told me about it / my peers shop there | 0.0% | 0 |
| **This website carries brands I like** | **50.0%** | **1** |
| This website received good reviews (product and/or service quality) | 0.0% | 0 |
| **I saw advertising for this website** | **50.0%** | **1** |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **2** |
| | **skipped question** | **19** |

***Page 16.*** MP Acquisition Survey

**30. What was your process for choosing a shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I browsed the entire website | 100.0% | 2 |
| I used the help tools on the website | 0.0% | 0 |
| I knew that I wanted a shirt in a particular range or brand (i.e., looking for a shirt in a color range) | 50.0% | 1 |
| I picked the first decent shirt that I came across | 0.0% | 0 |
| I looked at their top recommendations | 0.0% | 0 |
| I had someone help me with shopping and/or opinions | 0.0% | 0 |
| With no preconceived idea, I simply knew what I wanted when I saw it | 0.0% | 0 |
| I browsed the sales section first | 0.0% | 0 |
| Other (please specify) | 50.0% | 1 |
| | answered question | 2 |
| | skipped question | 19 |

***Page 17.*** MP Acquisition Survey

**31. How much total time did you spend at the website(s) where you did NOT purchase a shirt? (If you went to more than one site, please give the total time).**

| | Response Percent | Response Count |
|---|---|---|
| 1 - 15 min | 0.0% | 0 |
| 16 - 30 min | 0.0% | 0 |
| 31 - 60 min | 50.0% | 1 |
| 61 - 120 min | 50.0% | 1 |
| 121+ min | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

**32. Why did you NOT purchase a dress shirt at this website(s)? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I didn't like the selection | 100.0% | 2 |
| They didn't have the brands I liked | 0.0% | 0 |
| They had the shirt I wanted, but didn't have my size | 50.0% | 1 |
| It was too expensive | 50.0% | 1 |
| The website was poorly designed | 50.0% | 1 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 18.*** MP Acquisition Survey

**33. For all the following features, please rate the level of importance for why you selected your new standard shirt. (You may select more than one feature as being 'Most Important')**

| | Most Important | Important | No opinion | Not Important | Least Important | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| Fabric material (cotton, linen, silk, synthetic, etc.) | 50.0% (1) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 0.0% (0) | 0.0% (0) | 100.0% (2) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Collar style | 0.0% (0) | 100.0% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Buttons | 0.0% (0) | 50.0% (1) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Fabric pattern/color | 50.0% (1) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Cuff style | 0.0% (0) | 50.0% (1) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| Size/dimension | 0.0% (0) | 100.0% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| | | | | | answered question | | 2 |
| | | | | | skipped question | | 19 |

***Page 19.*** MP Acquisition Survey

**34. How much time did you spend shopping at that website?**

| | Response Percent | Response Count |
|---|---|---|
| 5-10 min | 0.0% | 0 |
| 11-20 min | 0.0% | 0 |
| **21-30 min** | **50.0%** | **1** |
| 31-45 min | 0.0% | 0 |
| **46-60 min** | **50.0%** | **1** |
| 61+ min | 0.0% | 0 |
| | **answered question** | **2** |
| | **skipped question** | **19** |

**35. How many shirts did you look at on the website before deciding on one in particular?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| 2 | 0.0% | 0 |
| **3 - 5** | **50.0%** | **1** |
| **6 - 10** | **50.0%** | **1** |
| 11+ | 0.0% | 0 |
| | **answered question** | **2** |
| | **skipped question** | **19** |

**36. Did you purchase anything else on that website?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 0.0% | 0 |
| No | 100.0% | 2 |
| answered question | | 2 |
| skipped question | | 19 |

**37. What else did you purchase on the website? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Another shirt | 0.0% | 0 |
| Pants | 0.0% | 0 |
| Suit | 0.0% | 0 |
| Ties | 0.0% | 0 |
| Shoes | 0.0% | 0 |
| Cuff links or other accessories | 0.0% | 0 |
| Socks | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 0 |
| skipped question | | 21 |

***Page 21.*** MP Acquisition Survey

**38. Did anyone assist you shopping for your shirt online?**

| | Response Percent | Response Count |
|---|---|---|
| Yes, someone assisted me | 0.0% | 0 |
| **No, no one assisted me** | **100.0%** | **2** |
| | **answered question** | **2** |
| | **skipped question** | **19** |

**39. Who helped you shop online? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Family member | 0.0% | 0 |
| Spouse | 0.0% | 0 |
| Partner | 0.0% | 0 |
| Friend | 0.0% | 0 |
| Girlfriend | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **0** |
| | **skipped question** | **21** |

***Page 22.*** MP Acquisition Survey

**40. What decisions did they help you make? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They made the final decision of what to purchase | 0.0% | 0 |
| They provided feedback on my selections at the end of the shopping process | 0.0% | 0 |
| They helped me select option during the shopping process | 0.0% | 0 |
| They did everything, I didn't make any decisions | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 0 |
| skipped question | | 21 |

**41. Did you consider your wardrobe when selecting this new standard shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Yes, I considered my existing wardrobe | 100.0% | 2 |
| No, I did not consider my existing wardrobe | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 23.*** MP Acquisition Survey

**42. In particular, what item(s) within your wardrobe were you considering when shopping for the new standard shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Pants | 100.0% | 2 |
| Suits | 50.0% | 1 |
| Jackets | 50.0% | 1 |
| Shoes | 100.0% | 2 |
| Ties | 50.0% | 1 |
| Socks | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

**43. Why did you NOT consider your existing wardrobe when shopping for your new standard shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was planning to purchase new clothing to match it | 0.0% | 0 |
| I don't coordinate my clothing | 0.0% | 0 |
| Normally, I don't purchase my own clothing so it wasn't a consideration | 0.0% | 0 |
| This was a free shirt, so it didn't really matter | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 0 |
| skipped question | | 21 |

**44. Would you have purchased a similar shirt with your own money?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 100.0% | 2 |
| No | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

**45. What is the estimated price that you typically pay for a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20 - $39 | 0.0% | 0 |
| $40 - $59 | 50.0% | 1 |
| $60 - $99 | 50.0% | 1 |
| $100 - $199 | 0.0% | 0 |
| more than $200 | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 25.*** MP Acquisition Survey

**46. Please rate the following statements in regards to your overall shopping experience.**

| | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| I was able to find a shirt comparable to the custom shirt that I already designed from earlier in the study | 0.0% (0) | 100.0% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| I would rather shop online than to go to a physical store | 0.0% (0) | 50.0% (1) | 50.0% (1) | 0.0% (0) | 0.0% (0) | 1.00 | 2 |
| I was not concerned about purchasing a shirt that I was unable to try on | 0.0% (0) | 0.0% (0) | 0.0% (0) | 100.0% (2) | 0.0% (0) | 1.00 | 2 |
| | | | | | answered question | | 2 |
| | | | | | skipped question | | 19 |

**47. Optional question: In 1-2 paragraphs describe your general experience with the online website purchasing process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | Response Count |
|---|---|
| | 2 |
| answered question | 2 |
| skipped question | 19 |

***Page 26.*** MP Acquisition Survey

**48. How happy do you anticipate to be with the shirt you purchased? 1= Most satisfied; 5=Least satisfied**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| 2 | 100.0% | 2 |
| 3 | 0.0% | 0 |
| 4 | 0.0% | 0 |
| 5 | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 27.*** MP Acquisition Survey

**49. When going shopping, what was your strategy for choosing your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was looking to purchase a shirt that is similar to what I already have in my wardrobe | 35.7% | 5 |
| I was looking to purchase something completely different to what I already have in my wardrobe | 14.3% | 2 |
| I admired another similar shirt on another person and I was looking to find a similar style | 7.1% | 1 |
| I was looking to purchase a shirt in particular color and fabric range | 28.6% | 4 |
| I had no preconceived strategy | 7.1% | 1 |
| Other (please specify) | 35.7% | 5 |
| answered question | | 14 |
| skipped question | | 7 |

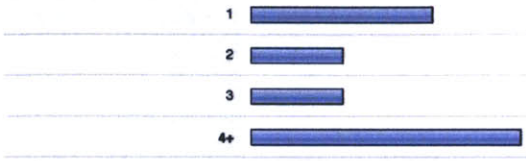
***Page 28.*** MP Acquisition Survey

**50. Which of the following factors were influential in the decisions you made when purchasing your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I knew that my significant other would appreciate certain colors and features so I chose those | 21.4% | 3 |
| The store's sales associate was very convincing and/or influential | 35.7% | 5 |
| The store had an appealing window display so I wanted to purchase what there was on display | 7.1% | 1 |
| My office has a dress code/norm, so I designed a shirt that would work well for the office | 14.3% | 2 |
| I was under time pressure, so I just picked the first decent one I could find | 7.1% | 1 |
| No other factors | 28.6% | 4 |
| **Other (please specify)** | **50.0%** | **7** |
| | **answered question** | **14** |
| | **skipped question** | **7** |

***Page 29.*** MP Acquisition Survey

**51. How many stores did you visit during your offline shopping process (including the one from where you purchased the new shirt)?**



| | Response Percent | Response Count |
|---|---|---|
| 1 | 28.6% | 4 |
| 2 | 14.3% | 2 |
| 3 | 14.3% | 2 |
| 4+ | 42.9% | 6 |
| answered question | | 14 |
| skipped question | | 7 |

**52. Please tell us your travel distance from home to retail store in miles. (feel free to use Google Maps to determine your exac**

| | <0.5 | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Distance in Miles | 0.0% (0) | 0.0% (0) | 0.0% (0) | 66.7% (4) | 0.0% (0) | 33.3% (2) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) |

***Page 30.*** MP Acquisition Survey

**53. How did you travel to the store?**

| | Response Percent | Response Count |
|---|---|---|
| Walk | 33.3% | 2 |
| Public transit | 16.7% | 1 |
| Automobile | 50.0% | 3 |
| Bicycle | 0.0% | 0 |
| Car pool | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 6 |
| skipped question | | 15 |

**54. Please specify the vehicle that you drove.**

| | Response Percent | Response Count |
|---|---|---|
| Make | 100.0% | 3 |
| Model | 100.0% | 3 |
| Year | 100.0% | 3 |
| answered question | | 3 |
| skipped question | | 18 |

***Page 31.*** MP Acquisition Survey

**55. Did you go anywhere else during your trip?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 50.0% | 3 |
| No | 50.0% | 3 |
| answered question | | 6 |
| skipped question | | 15 |

**56. Please specify what else you bought.**

| | Response Count |
|---|---|
| | 2 |
| answered question | 2 |
| skipped question | 19 |

**Please tell us your TOTAL trip travel distance in miles from home to store(s) and back home. Please include distance between stores if you went to more than on determine your exact distance)**

| | <0.5 | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Distance in miles | 0.0% (0) | 0.0% (0) | 20.0% (2) | 10.0% (1) | 10.0% (1) | 0.0% (0) | 10.0% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 20.0% (2) | 0.0% (0) |

***Page 32.*** MP Acquisition Survey

**58. How did you travel to the stores?**

| | Response Percent | Response Count |
|---|---|---|
| Walk | 30.0% | 3 |
| Public transit | 10.0% | 1 |
| Automobile | 60.0% | 6 |
| Bicycle | 0.0% | 0 |
| Car pool | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 10 |
| skipped question | | 11 |

**59. Please specify the vehicle that you drove.**

| | Response Percent | Response Count |
|---|---|---|
| Make | 100.0% | 6 |
| Model | 100.0% | 6 |
| Year | 100.0% | 6 |
| answered question | | 6 |
| skipped question | | 15 |

***Page 33.*** MP Acquisition Survey

**60. Did you go anywhere else during your trip?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 20.0% | 2 |
| No | 80.0% | 8 |
| answered question | | 10 |
| skipped question | | 11 |

**61. Where else did you go? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Grocery store | 0.0% | 0 |
| Restaurant or fast food | 100.0% | 2 |
| Gas station | 0.0% | 0 |
| Home improvement (e.g., home depot) | 0.0% | 0 |
| Pharmacy or convenience store | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 34.*** MP Acquisition Survey

**62. Did you purchase something else on your trip?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 50.0% | 1 |
| No | 50.0% | 1 |
| answered question | | 2 |
| skipped question | | 19 |

**63. Please specify what else you bought.**

| | Response Count |
|---|---|
| | 1 |
| answered question | 1 |
| skipped question | 20 |

**64. How much total time did you spend at the retail location(s) where you did NOT purchase a shirt? (If you went to more than one retail location, please give the total time).**

| | Response Percent | Response Count |
|---|---|---|
| 1 - 15 min | 44.4% | 4 |
| 16 - 30 min | 44.4% | 4 |
| 31 - 60 min | 11.1% | 1 |
| 61 - 120 min | 0.0% | 0 |
| 121+ min | 0.0% | 0 |
| answered question | | 9 |
| skipped question | | 12 |

***Page 35.*** MP Acquisition Survey

**65. Why did you NOT purchase a dress shirt at this retail location(s)? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I didn't like the selection | 55.6% | 5 |
| They didn't have the brands I liked | 11.1% | 1 |
| They had the shirt I wanted, but didn't have my size | 11.1% | 1 |
| It was too expensive | 22.2% | 2 |
| The store had a poor layout and design | 0.0% | 0 |
| Poor sales service | 0.0% | 0 |
| Information from my mobile device (e.g., Smart Phone, Tablet PC) changed my mind | 0.0% | 0 |
| Other (please specify) | 44.4% | 4 |
| | answered question | 9 |
| | skipped question | 12 |

***Page 36.*** MP Acquisition Survey

## 66. Why did you NOT purchase a dress shirt at this retail location(s)? (select all that apply)

| | Response Percent | Response Count |
|---|---|---|
| I didn't like the selection | 0.0% | 0 |
| They didn't have the brands I liked | 0.0% | 0 |
| They had the shirt I wanted, but didn't have my size | 0.0% | 0 |
| It was too expensive | 0.0% | 0 |
| The store had a poor layout and design | 0.0% | 0 |
| Poor sales service | 0.0% | 0 |
| Information from my mobile device (e.g., Smart Phone, Tablet PC) changed my mind | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 21 |

## 67. Please enter the name of retail store

| | Response Count |
|---|---|
| | 15 |
| answered question | 15 |
| skipped question | 6 |

**68. What was your motivation for going to this retail location? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| **I have shopped there before** | **60.0%** | **9** |
| It's close to my home | 33.3% | 5 |
| I went to my favorite mall | 40.0% | 6 |
| **It's a well known store** | **60.0%** | **9** |
| A friend told me about it / my peers shop there | 20.0% | 3 |
| I saw advertising for store | 0.0% | 0 |
| This store received good reviews (product and/or service quality) | 6.7% | 1 |
| This store carries brands I like | 26.7% | 4 |
| I searched it on the internet and decided to go there | 0.0% | 0 |
| I bought from their website before and wanted to go to the physical retail location | 0.0% | 0 |
| Other (please specify) | 26.7% | 4 |
| | **answered question** | **15** |
| | **skipped question** | **6** |

***Page 38.*** MP Acquisition Survey

**69. What was your process for choosing a shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I browsed the entire store | 40.0% | 6 |
| I asked a sales associate what would look good on me | 26.7% | 4 |
| I knew that I wanted a shirt in a particular range or brand (i.e., looking for a shirt in a color range) | 66.7% | 10 |
| I picked the first decent shirt that I came across | 13.3% | 2 |
| I had someone come with me to help shop | 26.7% | 4 |
| With no preconceived idea, I simply knew what I wanted when I saw it | 26.7% | 4 |
| I browsed the sales section first | 6.7% | 1 |
| Other (please specify) | 13.3% | 2 |
| | answered question | 15 |
| | skipped question | 6 |

***Page 39.*** MP Acquisition Survey

**70. For all the following features, please rate the level of importance for why you selected your new standard shirt. (You may select more than one feature as being 'Most Important')**

| | Most Important | Important | No opinion | Not Important | Least Important | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| Fabric material (cotton, linen, silk, synthetic, etc.) | 20.0% (3) | **80.0% (12)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 15 |
| Accent fabric pattern/color (collar, cuffs, etc.) | 6.7% (1) | **46.7% (7)** | 26.7% (4) | 13.3% (2) | 6.7% (1) | 1.00 | 15 |
| Collar style | 13.3% (2) | **53.3% (8)** | 33.3% (5) | 0.0% (0) | 0.0% (0) | 1.00 | 15 |
| Buttons | 0.0% (0) | 13.3% (2) | **46.7% (7)** | 40.0% (6) | 0.0% (0) | 1.00 | 15 |
| Fabric pattern/color | 40.0% (6) | **60.0% (9)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 15 |
| Cuff style | 0.0% (0) | **53.3% (8)** | 26.7% (4) | 20.0% (3) | 0.0% (0) | 1.00 | 15 |
| Size/dimension | **80.0% (12)** | 20.0% (3) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1.00 | 15 |
| | | | | | **answered question** | | **15** |
| | | | | | **skipped question** | | **6** |

***Page 40.*** MP Acquisition Survey

**71. How many shirts did you examine before deciding on one in particular?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| 2 | 6.7% | 1 |
| 3 - 5 | 53.3% | 8 |
| 6 - 10 | 33.3% | 5 |
| 11+ | 6.7% | 1 |
| answered question | | 15 |
| skipped question | | 6 |

**72. Did you try on any shirts before purchasing one?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 60.0% | 9 |
| No | 40.0% | 6 |
| answered question | | 15 |
| skipped question | | 6 |

***Page 41.*** MP Acquisition Survey

**73. How many shirts did you try on?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 55.6% | 5 |
| 2 | 33.3% | 3 |
| 3 - 5 | 11.1% | 1 |
| 6 - 10 | 0.0% | 0 |
| 11+ | 0.0% | 0 |
| answered question | | 9 |
| skipped question | | 12 |

**74. How much time did you spend shopping at this retail location?**

| | Response Percent | Response Count |
|---|---|---|
| 5-10 min | 20.0% | 3 |
| 11-20 min | 46.7% | 7 |
| 21-30 min | 33.3% | 5 |
| 31-45 min | 0.0% | 0 |
| 46-60 min | 0.0% | 0 |
| 61+ min | 0.0% | 0 |
| answered question | | 15 |
| skipped question | | 6 |

**75. Did you purchase anything else at the store?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 13.3% | 2 |
| No | 86.7% | 13 |
| answered question | | 15 |
| skipped question | | 6 |

**76. What else did you purchase at the store? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Another shirt | 50.0% | 1 |
| Pants | 0.0% | 0 |
| Suit | 0.0% | 0 |
| Ties | 50.0% | 1 |
| Shoes | 0.0% | 0 |
| Cuff links or other accessories | 50.0% | 1 |
| Socks | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 43.*** MP Acquisition Survey

**77. Did a sales person help you?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 73.3% | 11 |
| No | 26.7% | 4 |
| answered question | | 15 |
| skipped question | | 6 |

**78. In what way did the sales person help you? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Choosing shirts to try on | 27.3% | 3 |
| Finding my size | 63.6% | 7 |
| Helping with fit | 63.6% | 7 |
| Providing style opinion | 36.4% | 4 |
| Helping to make a final decision between shirts | 9.1% | 1 |
| Other (please specify) | 36.4% | 4 |
| answered question | | 11 |
| skipped question | | 10 |

***Page 44.*** MP Acquisition Survey

**79. Did you use a mobile device (e.g., Smart Phone, Tablet PC) to help you during your shopping experience?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 6.7% | 1 |
| No | 93.3% | 14 |
| answered question | | 15 |
| skipped question | | 6 |

**80. Did anyone accompany you to purchase your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Yes, someone accompanied me | 53.3% | 8 |
| No, no one accompanied me | 46.7% | 7 |
| answered question | | 15 |
| skipped question | | 6 |

***Page 45.*** MP Acquisition Survey

**81. Who accompanied you to purchase your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Family member | 12.5% | 1 |
| **Spouse** | **75.0%** | **6** |
| Partner | 0.0% | 0 |
| Friend | 0.0% | 0 |
| Girlfriend | 0.0% | 0 |
| Other (please specify) | 37.5% | 3 |
| | **answered question** | **8** |
| | **skipped question** | **13** |

**82. What decisions did they help you make? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| They made the final decision of what shirt to purchase | 0.0% | 0 |
| **They provided feedback on selections that I made** | **87.5%** | **7** |
| They helped me make selections | 37.5% | 3 |
| I didn't choose anything, they chose everything for me | 0.0% | 0 |
| Other (please specify) | 12.5% | 1 |
| | **answered question** | **8** |
| | **skipped question** | **13** |

**83. Did you consider your wardrobe when shopping for this new shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Yes, I considered my existing wardrobe | 100.0% | 15 |
| No, I did not consider my existing wardrobe | 0.0% | 0 |
| answered question | | 15 |
| skipped question | | 6 |

**84. In particular, what item(s) within your wardrobe were you considering when selecting the new shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Pants | 66.7% | 10 |
| Suits | 33.3% | 5 |
| Jackets | 6.7% | 1 |
| Shoes | 13.3% | 2 |
| Ties | 0.0% | 0 |
| Socks | 0.0% | 0 |
| Other (please specify) | 26.7% | 4 |
| answered question | | 15 |
| skipped question | | 6 |

***Page 47.*** MP Acquisition Survey

**85. Why did you NOT consider your existing wardrobe when shopping for a new standard shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was planning to purchase new clothing to match it | 0.0% | 0 |
| I don't coordinate my clothing | 0.0% | 0 |
| Normally, I don't purchase my own clothing so it wasn't a consideration | 0.0% | 0 |
| This was a free shirt, so it didn't really matter | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 21 |

**86. Would you have purchased a similar shirt with your own money?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 46.7% | 7 |
| No | 53.3% | 8 |
| | answered question | 15 |
| | skipped question | 6 |

***Page 48.*** MP Acquisition Survey

**87. What is the estimated price that you typically pay for a dress shirt?**

| | Response Percent | Response Count |
|---|---|---|
| Less than $19 | 0.0% | 0 |
| $20 - $39 | 33.3% | 5 |
| $40 - $59 | 40.0% | 6 |
| $60 - $99 | 6.7% | 1 |
| $100 - $199 | 13.3% | 2 |
| more than $200 | 6.7% | 1 |
| answered question | | 15 |
| skipped question | | 6 |

**88. How much total time did you spend at the website(s) where you did NOT purchase a shirt? (If you went to more than one site, please give the total time).**

| | Response Percent | Response Count |
|---|---|---|
| 1 - 15 min | 0.0% | 0 |
| 16 - 30 min | 0.0% | 0 |
| 31 - 60 min | 0.0% | 0 |
| 61 - 120 min | 0.0% | 0 |
| 121+ min | 0.0% | 0 |
| answered question | | 0 |
| skipped question | | 21 |

**89. Why did you NOT purchase a dress shirt at this website(s)? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I didn't like the selection | 0.0% | 0 |
| They didn't have the brands I liked | 0.0% | 0 |
| They had the shirt I wanted, but didn't have my size | 0.0% | 0 |
| It was too expensive | 0.0% | 0 |
| The website was poorly designed | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 21 |

**90. Please rate the following statements in regards to your overall shopping experience.**

| | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| I was able to find a shirt comparable to the custom shirt that I already designed from earlier in the study | 13.3% (2) | **46.7% (7)** | 6.7% (1) | 33.3% (5) | 0.0% (0) | 1.00 | 15 |
| I would rather go to a physical store than shop online | 26.7% (4) | **40.0% (6)** | 26.7% (4) | 6.7% (1) | 0.0% (0) | 1.00 | 15 |
| It was important to see and try on the physical shirt | **40.0% (6)** | 26.7% (4) | 13.3% (2) | 20.0% (3) | 0.0% (0) | 1.00 | 15 |
| | | | | | answered question | | 15 |
| | | | | | skipped question | | 6 |

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**91. Optional question: In 1-2 paragraphs describe your general experience with the offline retail purchasing process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | Response Count |
|---|---|
| | 12 |
| answered question | 12 |
| skipped question | 9 |

**92. How happy are you with the shirt you purchased? 1= most satisfied; 5 = least satisfied**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 53.3% | 8 |
| 2 | 33.3% | 5 |
| 3 | 0.0% | 0 |
| 4 | 6.7% | 1 |
| 5 | 6.7% | 1 |
| answered question | | 15 |
| skipped question | | 6 |

***Page 51.*** MP Acquisition Survey

**93. While shopping, what was your strategy for choosing your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I was looking to purchase a shirt that was similar to what I already have in my wardrobe | 25.0% | 1 |
| I was looking to purchase something completely different to what I already have in my wardrobe | 0.0% | 0 |
| I admired a similar shirt on another person and I was looking to find that style | 25.0% | 1 |
| I was looking to purchase a shirt in particular color and fabric range | 0.0% | 0 |
| **I had no preconceived strategy** | **50.0%** | **2** |
| **Other (please specify)** | **50.0%** | **2** |
| | **answered question** | **4** |
| | **skipped question** | **17** |

***Page 52.*** MP Acquisition Survey

**94. Which of the following factors were influential in the decisions you made when purchasing your shirt? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I knew that my significant other would appreciate certain colors and features so I chose those | 0.0% | 0 |
| The store's sales associate was very convincing and/or influential | 0.0% | 0 |
| The store had an appealing window display so I wanted to purchase what there was on display | 25.0% | 1 |
| **My office has a dress code/norm, so I selected a shirt that would work well for the office** | **50.0%** | **2** |
| I was under time pressure, so I just picked the first decent one I could find | 0.0% | 0 |
| The website showed designs that I thought were nice to emulate | 25.0% | 1 |
| No other factors | 0.0% | 0 |
| **Other (please specify)** | **50.0%** | **2** |
| | **answered question** | **4** |
| | **skipped question** | **17** |

***Page 53.*** MP Acquisition Survey

**95. Where did you initially go shopping, and from where did you ultimately purchase your shirt?**

| | Response Percent | Response Count |
|---|---|---|
| **I went shopping ONLINE first, but ultimately purchased OFFLINE** | **66.7%** | **2** |
| I went shopping OFFLINE first, but ultimately purchased ONLINE | 33.3% | 1 |
| Other combinations of shopping modes | 0.0% | 0 |
| | **answered question** | **3** |
| | **skipped question** | **18** |

**96. Please select the option which best describes your shopping experience**

| | Response Percent | Response Count |
|---|---|---|
| I went shopping ONLINE first, then visited an OFFLINE retail location (s), but ultimately purchased from an ONLINE website | 0.0% | 0 |
| I went shopping OFFLINE first, then visited an ONLINE website(s), but ultimately purchased from an OFFLINE retail location | 0.0% | 0 |
| | **answered question** | **0** |
| | **skipped question** | **21** |

***Page 54.*** MP Acquisition Survey

**97. How many websites did you go to before purchasing a dress shirt from an offline retail store?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| 2 | 50.0% | 1 |
| 3 | 50.0% | 1 |
| 4+ | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

**98. How much total time did you spend shopping online?**

| | Response Percent | Response Count |
|---|---|---|
| 1 - 15 min | 50.0% | 1 |
| 16 - 30 min | 50.0% | 1 |
| 31 - 60 min | 0.0% | 0 |
| 61 - 120 min | 0.0% | 0 |
| 121+ min | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

***Page 55.*** MP Acquisition Survey

**99. Why did you NOT purchase a dress shirt at this website(s)? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I didn't like the selection | 0.0% | 0 |
| They didn't have the brands I liked | 0.0% | 0 |
| They had the shirt I wanted, but didn't have my size | 0.0% | 0 |
| It was too expensive | 0.0% | 0 |
| The website was poorly designed | 0.0% | 0 |
| Other (please specify) | 100.0% | 2 |
| answered question | | 2 |
| skipped question | | 19 |

**100. How many stores did you visit during your offline shopping process (including the one from where you purchased the new shirt)?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 100.0% | 2 |
| 2 | 0.0% | 0 |
| 3 | 0.0% | 0 |
| 4+ | 0.0% | 0 |
| answered question | | 2 |
| skipped question | | 19 |

**101. How many offline retail stores did you visit before purchasing from an online website?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| 2 | 0.0% | 0 |
| 3 | 0.0% | 0 |
| 4+ | 100.0% | 1 |
| answered question | | 1 |
| skipped question | | 20 |

**Please tell us your TOTAL trip travel distance in miles from home to store(s) and back home. Please include distance between stores if you went to more than on determine your exact distance)**

| | <0.5 | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Distance in miles | 0.0% (0) | 0.0% (0) | 20.0% (2) | 10.0% (1) | 10.0% (1) | 0.0% (0) | 10.0% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 20.0% (2) | 0.0% (0) |

***Page 57.*** MP Acquisition Survey

**103. How did you travel to the stores?**

| | Response Percent | Response Count |
|---|---|---|
| Walk | 0.0% | 0 |
| Public transit | 100.0% | 1 |
| Automobile | 0.0% | 0 |
| Bicycle | 0.0% | 0 |
| Car pool | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 1 |
| | skipped question | 20 |

**104. Please specify the vehicle that you drove.**

| | Response Percent | Response Count |
|---|---|---|
| Make | 0.0% | 0 |
| Model | 0.0% | 0 |
| Year | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 21 |

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**105. How much time did you spend at the retail location(s) where you did NOT purchase a shirt? (If you went to more than one retail location, please give the total time).**

| | Response Percent | Response Count |
|---|---|---|
| 5-10 min | 0.0% | 0 |
| 11-20 min | 0.0% | 0 |
| 21-30 min | 0.0% | 0 |
| 31-45 min | 0.0% | 0 |
| 46-60 min | 0.0% | 0 |
| 61+ min | 0.0% | 0 |
| | **answered question** | **0** |
| | **skipped question** | **21** |

***Page 59.*** MP Acquisition Survey

**106. Why did you NOT purchase a dress shirt at this retail location(s)? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I didn't like the selection | 0.0% | 0 |
| They didn't have the brands I liked | 0.0% | 0 |
| They had the shirt I wanted, but didn't have my size | 0.0% | 0 |
| It was too expensive | 0.0% | 0 |
| The store had a poor layout and design | 0.0% | 0 |
| Poor sales service | 0.0% | 0 |
| Information from my mobile device (e.g., Smart Phone, Tablet PC) changed my mind | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| | answered question | 0 |
| | skipped question | 21 |

**107. Did you go anywhere else during your trip?**

| | | Response Percent | Response Count |
|---|---|---|---|
| Yes |  | 100.0% | 1 |
| No | | 0.0% | 0 |
| | | answered question | 1 |
| | | skipped question | 20 |

***Page 60.*** MP Acquisition Survey

**108. Where else did you go? (please select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| Grocery store | 0.0% | 0 |
| **Restaurant or fast food** | **100.0%** | **1** |
| Gas station | 0.0% | 0 |
| Home improvement (e.g., home depot) | 0.0% | 0 |
| **Pharmacy or convenience store** | **100.0%** | **1** |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **1** |
| | **skipped question** | **20** |

**109. Did you purchase something else on your trip?**

| | Response Percent | Response Count |
|---|---|---|
| **Yes** | **100.0%** | **1** |
| No | 0.0% | 0 |
| | **answered question** | **1** |
| | **skipped question** | **20** |

**110. Please specify what else you bought.**

| | Response Count |
|---|---|
| | 1 |
| **answered question** | **1** |
| **skipped question** | **20** |

***Page 61.*** MP Acquisition Survey

**111. How much total time did you spend shopping at the retail location(s) where you did NOT purchase a shirt?**

| | Response Percent | Response Count |
|---|---|---|
| 1 - 15 min | 0.0% | 0 |
| 16 - 30 min | 0.0% | 0 |
| 31 - 60 min | 100.0% | 1 |
| 61 - 120 min | 0.0% | 0 |
| 121+ min | 0.0% | 0 |
| answered question | | 1 |
| skipped question | | 20 |

**112. Did you use a mobile device (e.g., Smart Phone, Tablet PC) to help you during your shopping experience?**

| | Response Percent | Response Count |
|---|---|---|
| Yes | 100.0% | 1 |
| No | 0.0% | 0 |
| answered question | | 1 |
| skipped question | | 20 |

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**113. Why did you NOT purchase a dress shirt at this retail location(s)? (select all that apply)**

| | Response Percent | Response Count |
|---|---|---|
| I didn't like the selection | 0.0% | 0 |
| They didn't have the brands I liked | 0.0% | 0 |
| **They had the shirt I wanted, but didn't have my size** | **100.0%** | **1** |
| It was too expensive | 0.0% | 0 |
| The store had a poor layout and design | 0.0% | 0 |
| Poor sales service | 0.0% | 0 |
| **Information from my mobile device (e.g., Smart Phone, Tablet PC) changed my mind** | **100.0%** | **1** |
| Other (please specify) | 0.0% | 0 |
| | **answered question** | **1** |
| | **skipped question** | **20** |

**114. How many websites did you visit during your online shopping process (including the one from where you purchased the new shirt)?**

| | Response Percent | Response Count |
|---|---|---|
| 1 | 0.0% | 0 |
| 2 | 0.0% | 0 |
| 3 | 0.0% | 0 |
| **4+** | **100.0%** | **1** |
| | **answered question** | **1** |
| | **skipped question** | **20** |

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***Page 65.*** MP Acquisition Survey

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*Private data on this page.*
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| | **Page 4, Q4. While shopping, what was your strategy for choosing your shirt? (select all that apply)** | |
|---|---|---|
| 1 | Replacing a worn shirt | Mar 13, 2012 12:17 PM |
| 2 | I tried to find a shirt that cost roughly $100. | Mar 13, 2012 12:17 PM |

| | **Page 6, Q7. Please enter the name of online website** | |
|---|---|---|
| 1 | Charles Tyrwhitt | Mar 14, 2012 8:10 AM |
| 2 | LL Bean | Mar 13, 2012 12:17 PM |

| | **Page 13, Q19. In particular, what item(s) within your wardrobe were you considering when shopping for the new standard shirt? (select all that apply)** | |
|---|---|---|
| 1 | current shirts | Mar 13, 2012 12:18 PM |

| | **Page 16, Q24. Optional question: In 1-2 paragraphs describe your general experience with the online purchasing process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)** | |
|---|---|---|
| 1 | The visit with the custome shirt individual prior to going online helped me be an informed online purchaser with regards to the different parts of a shirt (collar spread, cuffs, pocket/nopocket, etc...). Once given the "education" I don't see a need to go back to the custom tailor again. Online shirt shopping was quick and easy. It was much more streamlined of a process than I thought it would be. | Mar 14, 2012 8:39 AM |
| 2 | The delivery tie on the shirt I wanted was too long so I got a different color. | Mar 13, 2012 12:19 PM |

| | **Page 18, Q26. Where else did you go? (select all that apply)** | |
|---|---|---|
| 1 | Farmers market | Mar 14, 2012 10:25 AM |
| 2 | Cell phone store | Mar 13, 2012 12:23 PM |

| | **Page 19, Q28. Please enter the name of online website where you purchased your shirt.** | |
|---|---|---|
| 1 | koyono | Mar 16, 2012 2:23 PM |
| 2 | Bonobos.com | Mar 13, 2012 12:18 PM |

| | **Page 19, Q30. What was your process for choosing a shirt? (select all that apply)** | |
|---|---|---|
| 1 | i also had to find 3rd party images for the shirt since the ones on the site, | Mar 16, 2012 2:23 PM |

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**Page 19, Q30. What was your process for choosing a shirt? (select all that apply)**

koyono, were a bit crap

**Page 30, Q47. Optional question: In 1-2 paragraphs describe your general experience with the online website purchasing process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | | |
|---|---|---|
| 1 | It was as stressful as any other shopping i do - and less stressful than the fitting with 9tailors (which was time-crunched). I have enough shirts that i typically do not seek out shirts. But, when I'm seeking-shopping, I am very much a value consumer. It may seem arduous, but I check a number of different sites for deals/discounts & weigh that into my purchase, too (e.g. getting the equivalent of cash back on Nordstrom thought corporate perks, versus the sales at CTonline, Duchamp, Brooks Bros. ....) | Mar 16, 2012 2:29 PM |
| 2 | It was annoying because they didn't accept the gift card issued, but the sales staff were very helpful on the phone. The choice was somewhat limited and it felt like a gamble since i hadn't bought a shirt from them before, or even seen one in a store. | Mar 13, 2012 12:21 PM |

**Page 32, Q49. When going shopping, what was your strategy for choosing your shirt? (select all that apply)**

| | | |
|---|---|---|
| 1 | was looking for something different than I already have, but similar ("completely different" would be too strong a statement... just slightly different was my goal) | Mar 14, 2012 6:21 PM |
| 2 | Something in my style but not already in my wardrobe. | Mar 14, 2012 10:33 AM |
| 3 | I was planning to go to Nordstrom Rack, then Nordstrom, but stopped by Thomas Pink since it was closest to the Mall Entrance | Mar 14, 2012 6:17 AM |
| 4 | I was trying to buy a shirt for the right price. I usually spend less, so had to go to different stores. I ended up settling on something I didn't like as much as the shirts from the place where I ordinarily shop. But I still liked it. The slim fit was very important. | Mar 13, 2012 12:35 PM |
| 5 | I was looking for a great-fitting shirt with spread collar that was also professional enough for the office | Mar 13, 2012 12:27 PM |



**Page 32, Q50. Which of the following factors were influential in the decisions you made when purchasing your shirt? (select all that apply)**

| | | |
|---|---|---|
| 1 | my own wants and needs | Mar 27, 2012 10:44 AM |
| 2 | looking for something different than the rest of my shirts | Mar 14, 2012 6:21 PM |
| 3 | Style of selected shirt. Most stores had shirts in a style I already have. Was looking for variety for my wardrobe | Mar 14, 2012 10:33 AM |
| 4 | dont like to iron - looked for wrinkle free and slim cut | Mar 14, 2012 8:28 AM |
| 5 | The store only had shirts in two price brackets, $130 or $185 | Mar 14, 2012 6:17 AM |
| 6 | hitting close to target cost | Mar 13, 2012 12:35 PM |
| 7 | found a brand (Hugo Boss slim fit) that fits my size/shape well. | Mar 13, 2012 12:27 PM |

| Page 35, Q54. Please specify the vehicle that you drove. | | |
|---|---|---|
| | Make | |
| 1 | Acura | Mar 14, 2012 12:31 PM |
| 2 | Subaru | Mar 14, 2012 12:09 PM |
| 3 | VW | Mar 14, 2012 10:24 AM |
| | Model | |
| 1 | TSX | Mar 14, 2012 12:31 PM |
| 2 | Forrester | Mar 14, 2012 12:09 PM |
| 3 | Touareg | Mar 14, 2012 10:24 AM |
| | Year | |
| 1 | 2004 | Mar 14, 2012 12:31 PM |
| 2 | 2007 | Mar 14, 2012 12:09 PM |
| 3 | 2011 | Mar 14, 2012 10:24 AM |

| Page 37, Q56. Please specify what else you bought. | | |
|---|---|---|
| 1 | lunch - burrito | Mar 27, 2012 10:45 AM |
| 2 | Organic olive oil, locally grown root vegetables, grass fed beef, wine, cleaning supplies | Mar 14, 2012 10:27 AM |

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**Page 39, Q59. Please specify the vehicle that you drove.**

| | | |
|---|---|---|
| | **Make** | |
| 1 | Subaru | Mar 19, 2012 6:38 PM |
| 2 | Subaru | Mar 14, 2012 6:22 PM |
| 3 | Subaru | Mar 14, 2012 10:34 AM |
| 4 | Toyota | Mar 14, 2012 8:29 AM |
| 5 | Subaru | Mar 14, 2012 6:20 AM |
| 6 | Toyota | Mar 13, 2012 12:29 PM |
| | **Model** | |
| 1 | Legacy | Mar 19, 2012 6:38 PM |
| 2 | Outback | Mar 14, 2012 6:22 PM |
| 3 | Outback | Mar 14, 2012 10:34 AM |
| 4 | Avalon | Mar 14, 2012 8:29 AM |
| 5 | Forrester | Mar 14, 2012 6:20 AM |
| 6 | Sienna LTD | Mar 13, 2012 12:29 PM |
| | **Year** | |
| 1 | 1991 | Mar 19, 2012 6:38 PM |
| 2 | 2010 | Mar 14, 2012 6:22 PM |
| 3 | 2010 | Mar 14, 2012 10:34 AM |
| 4 | 2001 | Mar 14, 2012 8:29 AM |
| 5 | 2010 | Mar 14, 2012 6:20 AM |
| 6 | 2007 | Mar 13, 2012 12:29 PM |

**Page 42, Q63. Please specify what else you bought.**

| | | |
|---|---|---|
| 1 | cuff links | Mar 20, 2012 1:50 PM |

***Page 73.*** MP Acquisition Survey

**Page 43, Q65. Why did you NOT purchase a dress shirt at this retail location(s)? (select all that apply)**

| | | |
|---|---|---|
| 1 | Crowded store | Mar 25, 2012 1:57 PM |
| 2 | Nordstrom Rack was having a clearance sale, so everything was too cheap and selection was not a good as normal | Mar 14, 2012 6:22 AM |
| 3 | Or, it was too cheap. | Mar 13, 2012 12:38 PM |
| 4 | Macy's was not expensive ENOUGH, i.e. they didn't have any shirts for $100, so I went to Neiman Marcus | Mar 13, 2012 12:30 PM |

***Page 74.*** MP Acquisition Survey

| Page 45, Q67. Please enter the name of retail store | | |
|---|---|---|
| 1 | Men's Warehouse | Mar 27, 2012 10:46 AM |
| 2 | Banana Republic | Mar 25, 2012 1:58 PM |
| 3 | Pink | Mar 20, 2012 1:55 PM |
| 4 | Brooks Brothers | Mar 20, 2012 6:58 AM |
| 5 | Macy's | Mar 19, 2012 6:39 PM |
| 6 | Banana Republic | Mar 14, 2012 6:23 PM |
| 7 | Brooks Brothers | Mar 14, 2012 12:32 PM |
| 8 | Brooks Brothers | Mar 14, 2012 12:10 PM |
| 9 | Nordstrom | Mar 14, 2012 10:29 AM |
| 10 | Bannana Republic | Mar 14, 2012 8:30 AM |
| 11 | Thomas Pink | Mar 14, 2012 6:24 AM |
| 12 | Brooks Brothers | Mar 13, 2012 12:39 PM |
| 13 | Neiman Marcus | Mar 13, 2012 12:32 PM |
| 14 | Pink | Mar 13, 2012 12:30 PM |
| 15 | Banana Republic | Mar 13, 2012 12:24 PM |

| Page 45, Q68. What was your motivation for going to this retail location? (select all that apply) | | |
|---|---|---|
| 1 | I could walk to it from work. | Mar 27, 2012 10:46 AM |
| 2 | Good selectio, good service | Mar 14, 2012 10:29 AM |
| 3 | Though I had browsed this store before, I had never purchased a shirt from them so I was interested in seeing if I like the fit | Mar 14, 2012 6:24 AM |
| 4 | My wife suggested it. | Mar 13, 2012 12:32 PM |

| Page 45, Q69. What was your process for choosing a shirt? (select all that apply) | | |
|---|---|---|
| 1 | Tryiong to spend exactly $100 | Mar 14, 2012 10:29 AM |
| 2 | asked sales associate to point me to a $100 slim fit dress shirt with broad collar | Mar 13, 2012 12:32 PM |

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| Page 51, Q78. In what way did the sales person help you? (please select all that apply) | | |
|---|---|---|
| 1 | discussed care for shirts and helped pick out ties | Mar 27, 2012 10:51 AM |
| 2 | Finding the most expensive shirts | Mar 19, 2012 6:41 PM |
| 3 | Measured my neck | Mar 14, 2012 6:26 AM |
| 4 | location didn't have my size, they called a different store and had them hold it for me | Mar 13, 2012 12:28 PM |

| Page 53, Q81. Who accompanied you to purchase your shirt? (select all that apply) | | |
|---|---|---|
| 1 | daughter | Mar 19, 2012 6:41 PM |
| 2 | my 2-year old son | Mar 14, 2012 6:27 AM |
| 3 | fiancee | Mar 13, 2012 12:29 PM |

| Page 53, Q82. What decisions did they help you make? (please select all that apply) | | |
|---|---|---|
| 1 | None | Mar 14, 2012 6:27 AM |

| Page 55, Q84. In particular, what item(s) within your wardrobe were you considering when selecting the new shirt? (select all that apply) | | |
|---|---|---|
| 1 | other shirts I already have | Mar 14, 2012 6:25 PM |
| 2 | Other shirts | Mar 14, 2012 11:18 AM |
| 3 | other shirts already in my wardrobe | Mar 13, 2012 12:34 PM |
| 4 | other shirts | Mar 13, 2012 12:30 PM |

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**Page 59, Q91. Optional question: In 1-2 paragraphs describe your general experience with the offline retail purchasing process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | | |
|---|---|---|
| 1 | The store did not have a great deal of choices in my size but luckily I found something I liked. Store location, since I don't particularly like shopping and wanted to get this done, was very important for me. Simply taking a walk to the Galleria made it easy. | Mar 27, 2012 10:54 AM |
| 2 | The Cambridgeside Galleria Macy's was crowded, which made it a stressful place to be. And several of the shirts I liked there were around $60, so I didn't consider them. I looked at the Gap, but didn't like the selection. American Eagle: too cheap. Banana Republic had products at the right price, and the atmosphere there the most calm out of all the stores. | Mar 25, 2012 2:04 PM |
| 3 | Pink has a good customer service reputation. The trick was finding a shirt that fit inside the 100 dollar budget. | Mar 20, 2012 1:59 PM |
| 4 | It was not pleasant experience. It was hard to find shirts in the styles I like. Most of the shirts were low quality. I was surprised you can't buy a shirt for $100 at the mall. Most shirts were also of a style I am not used to, which is tight fit, no iron. | Mar 19, 2012 6:45 PM |
| 5 | it was... just another shopping experience with one little twist. I usually purchase a bunch of shirts at once (usually during sales times of the year). I need to be in a "mood" or mindset to want to purchase clothes. So I wait -- literally - two years and then go buy 5-7 new shirts to rotate into the wardrobe (usually get pants at this time too). So, for this exercise it was a bit hard to lock in on just one shirt. usually I get a bunch of shirts, but not worry that I already have similar shirts like this. In this case, since I was getting just one nicer shirt, I wanted to make sure it was a bit different (but still in my day-in, day-out style). | Mar 14, 2012 6:28 PM |
| 6 | The store selection was more limited then online but I got to take the shirt with me and wear it right away. | Mar 14, 2012 12:36 PM |
| 7 | Enjoyed browsing. Know exactly what size I need, (16.5 34/35) but often find shirts that are only offered in S, M, L, XL which usually don't fit. I would normally shop for more pxpensive shirts on sale for less than $100. Finding a shirt that cost just $100 was an artificial contraint that limited my options significantly. | Mar 14, 2012 12:27 PM |
| 8 | It was ok, the store assistant was very helpful | Mar 14, 2012 12:13 PM |
| 9 | The offline experience is usually less efficient than the customer shirt experience since you have to browse for both style and size. When I buy my shirts from a customer tailor I can usually pick 3-5 fabrics much faster than I can find a shirt I like off the rack. | Mar 14, 2012 6:30 AM |
| 10 | It was eye-opening. I had to go to stores I don't normally go to to find the shirt in the right price range. After a bit of that, $100 didn't seem like much money at all, in one sense--the shirts I really liked outside my normal store often cost over $500. On the other hand, I also found a lot of really cheap shirts that would have been okay. It was stressful.In the end, it was great to go to a store with a wide selection, that I knew would have precisely my size, even though I found the shirts a little too boring. | Mar 13, 2012 12:44 PM |
| 11 | I was surprised to find that buying a $125 dress shirt was exactly the same as | Mar 13, 2012 12:40 PM |

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**Page 59, Q91. Optional question: In 1-2 paragraphs describe your general experience with the offline retail purchasing process. (For example: Was it fun? Was it what you expected? Was stressful? Too limited? Too many choices?)**

| | | |
|---|---|---|
| | buying a $25 dress shirt. I needed to visually see a fabric I liked and then sort through piles and racks of shirts looking for a slim fit 15-1/2, 32 shirt. If I was lucky, there would be one. If not, it was on to the next style that caught my eye. In the end, there were only 2 shirts that met my criteria, and I could tell without trying it on that the one for $85 just wasn't cut right. I tried on the $125 shirt and it did fit me very well. Thankfully, since it was really my only option. Also thankfully you folks gave me a $100 gift card - I never would have spent that much on a shirt myself! | |
| 12 | in store experience was easy, mostly because I pre-shopped online first | Mar 13, 2012 12:32 PM |

**Page 61, Q93. While shopping, what was your strategy for choosing your shirt? (select all that apply)**

| | | |
|---|---|---|
| 1 | I'm always on the look out for a well-priced 100% cotton Takumi shirt | Mar 16, 2012 2:16 PM |
| 2 | I was looking to purchase something different from what I have in my wardrobe, but not completely different. | Mar 14, 2012 10:22 AM |

**Page 61, Q94. Which of the following factors were influential in the decisions you made when purchasing your shirt? (select all that apply)**

| | | |
|---|---|---|
| 1 | value (price vis-a-vis features: contrast, double cuff, slim-fit) | Mar 16, 2012 2:16 PM |
| 2 | Looking for a shirt that I liked | Mar 14, 2012 10:22 AM |

**Page 65, Q99. Why did you NOT purchase a dress shirt at this website(s)? (select all that apply)**

| | | |
|---|---|---|
| 1 | wanted to feel the fabric | Mar 14, 2012 10:23 AM |
| 2 | wanted to try it on first | Mar 13, 2012 12:23 PM |

**Page 73, Q110. Please specify what else you bought.**

| | | |
|---|---|---|
| 1 | a few rounds at Les Zygomates | Mar 16, 2012 2:20 PM |

***Page 79.*** MP Acquisition Survey

**Page 73, Q110. Please specify what else you bought.**

***Page 80.*** MP Acquisition Survey

**Optional Questions**
Participants were asked to write 1-2 paragraphs on their overall experience for each retail experience. To help them answer this question we asked: Was the process fun? Was it what you expected? Was it stressful? Too limited? Too many choices?

Below is a sampling of key statements not utilized in the main body text of Chapter 5.

MM Results (*Quotes from Participants*)
Nine of the 10 participants answered this question.

*This is the first time I order clothing online. If all goes well, perhaps I'll feel more confident about doing it in the future.*

*The User Interface needs work. I would have like to have browsed sample designs before beginning my design. I did not notice all of the options on the first pass and then found it hard to go back without undoing other selections. I am not confident in my measures. I was disappointed in the number of fabric choices and perplexed by the marked cost differences. Once I get a shirt that fits however, I'd be very likely to order another. The design process is fun.*

*Too limited.*

*I wasn't a huge fan of the UI. I thought it a little clunky and could have been more useful with pop-up descriptions versus breaking the flow of my decisions. I also strongly question the accurateness of the color of the fabric (based on the description) on screen.*

CT Results (*Quotes from Participants*)
Nine of the 12 participants answered this question.

*It was fun, although as the process progressed into details it became a little harder to keep the big picture in mind, i.e. so that a good choice in isolation would work with the overall intent. I think it would have been easier if I had explained the situations I wanted to wear the shirt in, and then had the consultant guide me within those parameters.*

*It was fun. I would have appreciated seeing a few sample shirts – it was hard to visualize what the final shirt would look like, and I'm a little nervous whether I'll like the final product. Also, I didn't really love any of the fabrics – more color choice and more variety of texture/weave would have been good.*

*I basically took the consultants recommendations, my wardrobe, and Fidelity's cultural norms and married them to design an original shirt that was somewhat different than the others in my wardrobe. I like not to have to think too much when buying clothes. It was nice to have the consultant do the thinking and I just say yes or no. I would say there are too many choices. Many of them are nearly the same and the nuances would be unrecognizable to 99% of the population.*

*I found the process fun. Ken was very helpful and informative. Overall I enjoyed the experience.*

MP Online Results (*Quotes from Participants*)
Both participants in this group answered this question.

*The delivery tie on the shirt I wanted was too long so I got a different color.*

MP Offline Results (*Quotes from Participants*)
11 of the 21 Participants answered this question.

*The store did not have a great deal of choices in my size but luckily I found something I liked. Store location, since I don't particularly like shopping and wanted to get this done, was very important for me. Simply taking a walk to the Galleria made it easy.*

*The Cambridgeside Galleria Macy's was crowded, which made it a stressful place to be. And several of the shirts I liked there were around $60, so I didn't consider them. I looked at the Gap, but didn't like the selection. American Eagle: too cheap. Banana Republic had products at the right price, and the atmosphere there the most calm out of all the stores.*

*It was... just another shopping experience with one little twist. I usually purchase a bunch of shirts at once (usually during sales times of the year). I need to be in a "mood" or mindset to want to purchase clothes. So I wait – literally – two years and then go buy 5-7 new shirts to rotate into the wardrobe (usually get pants at this time too). So, for this exercise it was a bit hard to lock in on just one shirt. Usually I get a bunch of shirts, but not worry that I already have similar shirts like this. In this case, since I was getting just one nicer shirt, I wanted to make sure it was a bit different (but still in my day-in, day-out style).*

*The store selection was more limited then online but I got to take the shirt with me and wear it right away.*

*The offline experience is usually less efficient than the customer shirt experience since you have to browse for both style and size. When I buy my shirts from a customer tailor I can usually pick 3-5 fabrics much faster than I can find a shirt I like off the rack.*

*I was surprised to find that buying a $125 dress shirt was exactly the same as buying a $25 dress shirt. I needed to visually see a fabric I liked and then sort through piles and racks of shirts looking for a slim fit 15-1/2, 32 shirt. If I were lucky, there would be one. If not, it was on to the next style that caught my eye. In the end, there were only 2 shirts that met my criteria, and I could tell without trying it on that the one for $85 just wasn't cut right. I tried on the $125 shirt and it did fit me very well. Thankfully, since it was really my only option. Also thankfully you folks gave me a $100 gift card - I never would have spent that much on a shirt myself!*

*In store experience was easy, mostly because I pre-shopped online first.*