The Imperative of Experience and Strategies for Designing Experiences at Scale

by

Matthew R. Tucker

B.A. International Studies
University of North Carolina - Chapel Hill, 2011

Submitted to the Integrated Design and Management Program in partial fulfillment of the requirements for the degree of

MASTERS OF SCIENCE IN ENGINEERING AND MANAGEMENT

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 2017

© 2017 Matthew Tucker. All rights reserved.

The author hereby grants to MIT permission to reproduce and to distribute publicly paper and electronic copies of this thesis document in whole or in part in any medium now known or hereafter created.

Signature redacted

Matthew R. Tucker
Integrated Design & Management Program, MIT
May 18, 2017

Signature redacted

Federico Casalegno
Associate Professor of the Practice, Comparative Media Studies/Writing, MIT

Signature redacted

Matthew S. Kressy
Director, Integrated Design & Management Program, MIT
Acknowledgements:

I would first and foremost like to thank my partner, Lauren Baum, for her unwavering support and firm encouragement throughout this process. She has listened patiently to countless rants and terrible ideas since our relationship began, but especially in the last year as the thinking behind this thesis came together. She is truly exceptional.

I cannot thank my advisor, Professor Federico Casalegno, and the director of my program, Matt Kressy, enough for their guidance as I have gone deep into the human-centered design process over the last two years. They have given me opportunities most people would only dream of, trusted me, given valuable feedback, and been friends throughout my time at MIT.

I would not be at MIT without the help and support of Marco Iansiti, Tom Hulme, Karim Lakhani, Colin Maclay, and Michael Maness. Their wisdom and generosity have changed my life in ways I never could have imagined. To my other colleagues at Harvard Business School, who were exceedingly patient and supportive of me while I was balancing both work and school, thank you for putting up with me and making that year possible.

I have to thank the MIT professors who have made this experience everything I could have asked for and more. In particular, I want to thank Carlos Osorio and Henry Birdseye Weil for the fascinating lectures and conversations that have enriched my understanding of the topics covered in this thesis.

To my classmates Kevin Yuen, Talha Hasan, Sara Remsen, Ben Coble, Maria Tafur, Huda Jaffer, Alicia Chong, Aciel Halaby, and everyone else: this experience would not have been the same without you. I have learned so much from each of you.

Finally, this thesis is dedicated to my mom, Kay Tucker, for everything she has done to get me to this point, and to the memory of my dad, Michael Tucker, who passed in 2010. You both made so many sacrifices to provide us with a great opportunity to succeed, and I hope I have made you proud.
ABSTRACT

In recent years, intense competition, fueled in large part by globalization and digitalization, has been accelerating the process of commoditization of products and services. Even when design is deployed to shape the product and distinguish it from competitors, the design often remains product-centric and easy to replicate. These dynamics have created an abundance of material wealth in developed economies, and people are often choosing to devote discretionary income to paying for fulfilling, unique experiences. In response, more companies are beginning to offer experiences to their customers as a way of differentiating themselves. Experiences, first recognized as a distinct economic offering in the late 1990s, are more holistic and subjective than products or services, appeal to higher order needs than the purely functional, and facilitate the development of customer-company relationships in place of transactional exchanges. The imperative of offering experiences presents significant challenges for nearly all companies, as they will be required to shift from being product-centric to being customer-centric.

Recognizing that experiences reflect many technology products in their complexity, this thesis seeks to combine the fields of human-centered design and systems design to make experience design more accessible to all companies. Then, based on analysis of design systems and transmedia, it presents the concept of creating a design platform that permits extension and further development of the experience. This strategy balances consistency with the ability to respond to customer needs and adoption of new technology platforms. Finally, ideas for future research into this nascent field are presented.
1 Motivation

During my undergraduate education, while I was studying globalization and international development, I became fascinated by the potential impact of digital technology. The first iPhone was released a few months before I took my first college classes, and the combination of the technical possibilities and its effects on this new global society captured my imagination. I quickly realized that putting powerful computers in every person’s hand would have profound consequences for the world.

As I understood more about the digital revolution, it became clear that the old, Industrial era way of business was going to encounter strong headwinds. If most companies were predicated upon creating a centralized, repeatable, scalable process for delivering standardized outputs and outcomes, then many would be in trouble when it became necessary to take a more customized and decentralized approach. I believed that this would be the case for two reasons. First, the balance of power would change. Historically, power has accrued to those with the influence and resources sufficient to assert some level of control over the world, either by making some things happen or by preventing others. As information and services became the primary economic output, the means of production and participation were simultaneously being distributed to individuals in a way that they never had been before, thanks to Moore’s Law. Second, because individuals were obtaining more power, access to information, and agency, they would have higher expectations for the offerings that businesses would deliver, and they would expect to be involved and engaged in the process of value creation. In short, mass production and scale would no longer confer the advantages that companies thought they did. Indeed, it was likely that they would become disadvantages.
It was in this context that I decided to help Colin Maclay to start the Digital Initiative at Harvard Business School. From day one, my priority was to launch a platform, called the HBS Open Forum, that would allow teams of faculty and staff around the school to engage students, alumni, and the general public in research and other projects through open innovation and crowdsourcing. By engaging people in a deep discussion, we effectively co-created ideas with them, developing theories that would appear in the pages of the Harvard Business Review, like the Capitalist’s Dilemma, which was developed in partnership with Professors Clayton Christensen, Derek van Bever, and the alumni of the Building and Sustaining Successful Enterprises course at HBS. We also co-created outcomes, helping Professor Robert Huckman, Professor Richard Hamermesh, Cara Sterling and the rest of the HBS Health Care Initiative to identify promising health care start-ups and then accelerate and shape their scaling strategies with the help of alumni and other members of the community. Being open to external participation constituted a groundbreaking approach for Harvard Business School, one of the most exclusive institutions in the world, and dramatically changed the way that many people experienced the school. When I had that realization, it was a formative moment for me. I suddenly recognized first-hand the way that digital technology could enable new experiences, in this case by making deeper engagement and co-creation possible.

At the same time, I was learning more about the human-centered design process through the launch of the Open Forum platform. At first, my understanding of the design process was as a structured way of thinking, because of the software’s phased approach to problem-making and solving. The software was created by IDEO’s OIEngine team, and one of the team’s cofounders,
Tom Hulme, became a mentor, as did others involved with the Digital Initiative. They shared veteran insights from the design process, gave me the opportunity to develop my skills, and provided valuable feedback. They also supported me in joining the Integrated Design & Management program, where, combined with my work at the MIT Design Lab, I developed a truly human-centered perspective built on deep empathy, an understanding of emotions and context, and obsession with finding the real problem and solving it in a way that was meaningful for humans. I am now convinced that design is the only way of creating sustainably successful offerings, because it orients you towards meeting your customer’s deepest needs.

These trends came together in my mind to form a unified perspective:

- The pinnacle of human-centered design is the delivery of an experience that considers everything about the customer’s needs - the physical, mental, spiritual, emotional, and economic, just to name a few.
- Companies that deliver experiences that satisfy a customer’s needs will have a sustained competitive advantage over those that do not.
- To maintain that advantage, a company must maintain the trust of its customers, often by involving them in the design process.
- The digital world poses a challenge to companies that must deliver consistent, emotionally resonant offerings, all while pushing decision-making authority towards the edges of their organization.

This thesis explores ways that companies can meet that challenge effectively. It asks how organizations can design and deliver a consistent, exceptional, personal experience at scale.
2 Introduction: An Economic Shift

The economy in 2017 is hypercompetitive. It is fast: the fast fashion industry, for example, restocks with new products twice a week (Lutz), tearing up the old industry playbook that said companies stocked once per season. It is global: 9.84 billion tons of merchandise moved around the world via maritime trade in 2014 ("Review of Maritime Transport" x) and continues to grow. It is dynamic: according to one report, about half of the companies on the S&P 500 are expected to churn out of the index over the next ten years (Anthony et al.). These characteristics are the result of many convergent forces, but few have been more influential in fueling this intense competition than globalization and digitalization.

2.1 Globalization is one driving force for intensified competition

Globalization as a process has been occurring for decades, but it began in earnest after the fall of Communism. Once capitalism’s only competitor disappeared, there were few countries that were not open to free-market activity and, specifically, to trade. International commerce accelerated not only because of new free trade agreements, but because of revolutions in shipping and information and communication technologies (ICT) that facilitated the seamless exchange of goods, services, and currencies across borders.

Over time, companies began to treat the world as one global market. Goods were produced in one country and shipped to customers around the world. While this global market created new opportunities for expansion, it also subjected companies to even more competition. A rival firm no longer had to come from within their home country, but could come from anywhere in the world. Customers suddenly had the ability to choose from many more brands, so many, in fact,
that all but the most notable faced the challenge of brand dilution (Dussart). Companies began to look for competitive advantages and cost savings, particularly through outsourcing and offshoring (Quelch). Many manufacturing jobs left developed countries and moved to developing countries in Asia and Latin America. This was the case for so many companies that the Chinese city of Shenzhen went from being a sleepy fishing village to “the world’s factory” in just a few short years. The Chinese manufacturing ecosystem became so productive and efficient that it fueled an incredible rise in the production of consumer goods. In 1990, Chinese manufacturing was responsible for only 3% of global output by value; now, “it is nearly a quarter… and produces about 80% of the world’s air conditioners and 60% of its shoes,” for example (“Made in China?”).

As companies have offshored and outsourced their production capabilities to foreign manufacturing ecosystems, it has become harder to protect intellectual property. Counterfeits and copy-cats make it nearly impossible to differentiate an authentic product from a fake one in many parts of the world. Recent research found that product concepts posted to the crowdfunding website Kickstarter are now often copied and produced at scale in Shenzhen before the Kickstarter campaign has even finished (Mina).

That kind of rapid replication is only possible because of the convergence of two conditions. The first is that the Shenzhen ecosystem has developed unparalleled expertise, supported by an incredible density of production knowledge, thanks to globalization. The second condition is digitization: as product plans are now constructed, edited, and shared digitally, they can be replicated much faster than ever before.
2.2 Digitization is the other primary driver of hypercompetition

Though the Internet first debuted in its earliest form in the 1960s, digitization has only started disrupting the economy in the past 20 years. Thanks to breakthrough contributions from Alan Turing, Grace Hopper, Claude Shannon, and many others, humans have the ability to encode information into bits and packets that can be infinitely replicated, error-free, at zero marginal cost, and sent around the world at the press of a button (Lakhani and Iansiti). That ability creates a few important economic consequences.

The first is a challenge of differentiation. Before digitization, different products had different manifestations: newspaper articles on newsprint, magazine spreads on glossy pages, songs on vinyl and cassette tapes. It was not just media industries though – buildings were manifested both physically and as blueprints, products both as manufactured goods and detailed product sketches. After digitization, the information aspects of each of those are all fundamentally the same; they are made up of bits and appear as files with different titles but little else to distinguish them. Within media types, their formats are often the same, whether that is AMP, .doc, .m4a, or CAD. This has dramatically constrained companies in their ability to differentiate between their products and those of their competitors.

A related consequence is convergence. While industry and product verticals used to be distinct and clearly delineated, the information revolution has pitted companies that never would have thought of themselves as competitors against each other. Prahalad and Ramaswamy put it well in 2003 when they wrote:
“Converging technologies are causing industry boundaries to shift and blur, changing the very nature of products and services. Consider the emerging competitive landscape fostered by digitalization. Traditionally, the education, communication, leisure and entertainment markets all were served by distinctly different industries and businesses: the consumer electronics industry (including television and audio/video products); the computer business (including desktops, laptops and video consoles); the communication devices industry (including phones and pagers); the software business; the music industry and the movie industry. Just 20 years ago, each of these industries had its respective established competitors and unique competitive dynamics. It was a world of certainty in which features and functionality were embedded in the product. A still camera was different from a video camera. A television was different from a computer. Competitors, channels and customers accepted those distinctions, and there were clearly defined product and industry boundaries. Today, those boundaries have all but disappeared in the wake of an emerging digital consumer space.

Digitization has enabled the combination of features and functions of traditional industries and products in a myriad of new ways... In almost every industry, the distinct identities of products, services, channels, industries and companies are rapidly disappearing.”

A primary example of this unexpected convergence is Honeywell and Google. Honeywell was, for decades, one of the leading makers of home thermostats, holding as much as 39% percent of the US home thermostat market share (Black). Then in 2011, a company called Nest launched its
initial product: a digital thermostat. Unlike Honeywell's analog thermostat, which required customers to set temperatures manually and only responded to temperature changes within a certain preset range, the Nest Thermostat used machine learning algorithms and the collection of data about its users' daily lifestyle to anticipate and adapt to their needs. Nest had digitized information about the user's lifestyle and home environment, applied computing power to the resulting data, and created an entirely new experience. In 2014, Google purchased Nest for $3.2 billion. Google's founders created the company with the goal of organizing the world's information, and they saw in Nest the first real opportunity to gather information and understand more about how people live in their home. Suddenly, Honeywell was no longer just competing with an upstart that threatened its market position, but with one of the world's largest companies, and one well-versed in utilizing digital customer data to create excellent services.

The third effect of digitization is abundance, thanks to ubiquity. The combination of Moore's Law, battery technology, and wireless connectivity has turned into a perfect storm of ubiquitous computing, with mobile phones in every person's pocket, wearables proliferating rapidly, and embedded systems finding their way into everything from toasters to running shoes. To match that ubiquitous computing power, there is an abundance of content and software that makes the "smart" devices worth using.

### 2.3 Commoditytization is increasingly affecting goods and services

Globalization and digitalization have obliterated the constraints on the production of both physical and digital products and services, and as a result, they are becoming undifferentiated
commodities sold at market prices, rather than the differentiated products and services sold for higher prices that companies intended them to be.

The overall dynamic of commoditization has been well-documented and analyzed (Weil, Weil & Utterback). For any product, the moment a company introduces it to the market and works to get customers to adopt it, they have initiated a competitive dynamic that will eventually lead to its commoditization. A successful product will achieve profitability, which incentivizes competitors to introduce competing products to capture some of those profits for themselves. As long as excess value exists, new companies will enter the same market, and the intensity of competition will increase. At the same time, increased spending and productivity from R&D will support competition for a time. Eventually, however, price competition will push companies towards standardization and investments in capacity with the goal of competing on volume. The supply of the competing products will expand until profitability is essentially eliminated. With so much choice and so little differentiation between product capabilities or price, customers will happily substitute one company’s product for another.

2.4 Design as an insufficient differentiator

Many companies have begun to invest in design as a way of differentiating their products and services from those offered by competitors. They believe, often correctly, that improved usability and product experience lead to better valuation by customers. As far back as 1973, Thomas Watson of IBM told students at Wharton, “We are convinced that good design can materially help make a good product reach its full potential” (Kucheriavy). Indeed, that has been the primary goal of the discipline of design for much of history: masterfully giving a wonderful shape to “objects.” Industrial designers make physical products beautiful and easy for humans to use, incorporating human factors and ergonomics without compromising their function and utility. Graphic designers manipulate media – print, posters, digital, video – to make it visually appealing and easy to comprehend. In recent years, user interface (UI) designers have crafted the software interfaces that appear on the screens of our computers, both desktop and mobile. Because software interfaces are the most responsive and dynamic of these “objects,” the field of user experience (UX) design has also been created to shape their design at a higher level.

However, as I mentioned in section 2.1, it has become extraordinarily easy for physical products to be replicated and reproduced nearly identically, sometimes before the original product has even reached mass production. Much as industrial-scale production and globalization have contributed to the commoditization of products, digitalization has paved the path for the commoditization of services. Because the tools of software design and development are so widely available, it is relatively simple for a company to closely replicate its competitor’s services and introduce them to the market quickly. Anyone who has used mainstream software applications has likely observed how closely they resemble each other – with Snapchat and
Facebook as a case in point. Commentators in the technology industry often joke that the CEO of Snap (Snapchat’s parent company), Evan Spiegel, is Facebook’s “Chief Product Officer” because Facebook has copied Snapchat’s features so frequently (Frick). This is just one more example of the how digitalization facilitates convergence and competition.

2.4.1 Most companies are still product-centric

The reason that design, as practiced by the traditional disciplines, is insufficient is that it remains squarely focused on the product, rather than the human. For example, user interface design has a relatively standard definition of responsibility in most organizations: it deals with the design of software at a very granular level, shaping its most elemental interactions down to specific pixels. User experience design could have a much broader scope, ranging from the way that a set of interactions on a screen comes together to the highest level of considering the person’s context, emotions, and higher order needs. Despite this potential, UX design, as it is popularly practiced, is often limited to the lower end of that range; it is even frequently blurred with UI design. In a recent interview, Intercom’s Adam Risman (Risman) asked Google design strategist Golden Krishna about the scope of UX design:

“When we design software, especially because most software is on phones today, you just see mockups in rectangles. You forget about the entire environment in which someone’s using it... Maybe they’ll make some app that’s great for accountants. But they won’t draw the accountant’s workspace or their real workflow. They’ll just show what it’s like to go from screen to screen in an app.”
2.4.2 Companies have a “user” mindset, which needs to shift

Outside of the software industry, the word *user* refers to “someone who operates something,” suggesting that the person is defined by their relation to and interaction with a product or tool. This label orients designers and developers toward the product, not the person using it. The software industry’s characterization of the people that companies are designing for as “users” is problematic, but it is hardly unique to the software industry to think of people in this way.

Some people in the software industry have identified just how problematic this is. In 2012, Twitter co-founder Jack Dorsey wrote, “While the intent is to consider people first, the result is a massive abstraction away from real problems people feel on a daily basis” (Dickey). Dorsey continued to say that he preferred to use “customers” in the companies he leads “because it sets a high bar on the level of service we must provide.” Since then, there has been some additional reflection on the use of the term “users” in the technology industry, most notably from Facebook, where all previous mentions of “users” internally were replaced simply with “people.” Margaret Gould Stewart, Facebook’s director of product design, said the purpose of the change was to design in a more human-centered way by recognizing that the people who use it “actually have lives outside the experience of using your product” (Meyer). Despite the public changes from two of Silicon Valley’s biggest companies, the user mindset is pervasive in the technology industry, and as digitalization progresses, it is making its way into other industries as well.

Even in places where UX design is interpreted more broadly to include a multitude of disciplines that shape the context that humans find themselves in, humans and their needs are still rarely a primary concern. Figure 2-1 shows a popular graphic created to show the disciplines that fall,
fully or partially, within the realm of UX design. In this graphic, UX design is characterized as
the umbrella term that unifies fields as disparate as architecture, computer science, and writing.
Given how heavily these fields overlap with UX design, it is striking to note that philosophy,
cognitive science, psychology, and sociology lie entirely outside of it, connecting only via
human factors and ergonomics. While this graphic certainly does not characterize the views of
the UX design field as a whole, it is instructive that it is frequently reproduced as an explanation
of user experience design. It is also instructive that, despite the fact that the original file is open-
source, I was not able to find a reinterpretation that put human needs and concerns at the center
and portrayed the disciplines as tools for serving those needs.
Rather than just being beautiful or easy to use, successful offerings depend on a deep understanding of the customer. That understanding is founded on knowledge of the customer’s
emotions, intentions, psychology, context, and more. This represents a meaningful expansion beyond what currently falls under the purview of design in most companies. Accordingly, either UX design will need to shed the “user” label to expand and meet the new scope required of it, or a new discipline of experience design will have to subsume UX design into a larger, more holistic approach. As Marc Hassenzahl said in his seminal piece on experience design, “To look at ‘experience’ in terms of individual service or product touchpoints is ultimately too limiting. It is the total sum of that counts” (Hassenzahl).

2.4.3 Ubiquitous computing will change the scope of design

As Golden Krishna mentioned, the screen-oriented definition of user experience is due in part to the primacy of mobile computing (Risman). In 2016, 65% of “digital time spent” in the U.S. was spent on mobile phones. Even more staggeringly, almost 50% of digital time spent in the U.S. is spent on smartphone apps alone (Lipsman & Lella). Additionally, mobile-first startups, such as Uber and WhatsApp, are reaching astronomical valuations: $70 billion and $19 billion, respectively (Beales, Olson). Taken together, these trends create strong incentives for companies to focus heavily on developing products and applications for mobile devices.

However, focusing almost exclusively on mobile devices will not be a viable approach for much longer. Technologies like Wi-Fi, Bluetooth, and Near Field Communication (NFC), combined with cloud computing infrastructure and complementary devices like the Apple Watch, are making multi-platform experiences an everyday reality. This introduces new complexity, and forces UX designers to widen their scope to shape the experience as it flows from one platform to the next. Consumers are coming to expect that they will be able to pick up where they left off.
when interacting with a company’s digital products or services, no matter what device they are using. In practice, this has presented challenges for companies as they struggle to develop “omnichannel,” multi-platform approaches. As computing inserts itself into more and more into the background context of the average person’s day, companies will continue to struggle until they recognize that being oriented around the product is the problem.

2.5 The economy is shifting away from materialism and towards experiences

Rather than focusing on products, companies must orient themselves around humans. Material abundance has freed many people in developed economies from concerns about survival and is allowing them to focus instead on higher order needs, such as belonging, connection, and self-actualization. “Ronald Inglehart (1997) argued that societies in sustained periods of material wealth become increasingly interested in values such as personal improvement. They transform into highly individual Experience Societies (Schulze 1992; Schulze 2005) whose members equate happiness with the acquisition of positive life events.” (Hassenzahl) This observation is supported by other economists as well, including Tibor Scitovsky, who observed that increasing wealth drives an increase in expenditure on lavish experiences (Pine & Gilmore 2011, p. 8), and it is consistent with notable trends in the developed economies of the world in the mid-2010s. “Post-materialism” means innovators and designers must focus on delivering experiences that fulfill social and emotional needs.

Early responders to this trend include travel companies, musicians, and other entertainers as they lead the growth industry of experiences: “[In 2014], more than 3 in 4 millennials (78%) [said they] would choose to spend money on a desirable experience or event over buying something
desirable.” Millennials aren’t the only generation demanding experiences, however. “The demand for live experiences is happening across the generational board. Since 1987, the share of consumer spending on live experiences and events relative to total U.S. spending increased 70%.” (“Fueling the Experience Economy”)

Not only are these industries that already had experiential elements leading the way towards a new “experience economy,” but the research suggests that they are in a stronger position than ever to earn a majority of their customer’s discretionary dollars. “Studies show that experiential purchases (i.e., the acquisition of an event to live through, such as a concert, a dinner, a journey) make people more happy than material purchases (i.e., the acquisition of tangible objects, such as clothing, jewelry, stereo equipment) of the same value (Boven and Gilovich 2003; Carter and Gilovich 2010).” (Hassenzahl) Because of their ability to fulfill emotional and social needs – whether that is creating an opportunity to connect with friends and family, or helping them to escape from their worries – experiences are becoming the most desired offering a business can provide, while companies focused on products and services are engaged in cutthroat competition.

2.6 There is a new imperative for companies to offer experiences

Any company that is not considering how it might either turn its existing business into an experience or add complementary experiences that support and differentiate its existing offerings faces substantial challenges. The fact is that everything a company offers to its customers results in an experience; the question is whether the company has had the foresight to design it, or shape it, such that it has fulfilled the customer’s desires and created a positive relationship between the company and the customer. The goal of this thesis is to demonstrate that there are strategies that
companies can employ to effectively design and deliver the experiences that will put them in a position to thrive in this challenging new context.

3 Experiences and the Expanding Scale of Design

3.1 Experiences are a distinct, valuable economic offering

Many years ago, the main unit of economic exchange was a raw good – usually an agricultural product or natural resource – that was traded or sold in exchange for valuable currency. Over time, entrepreneurs determined that, rather than expecting others to turn those raw goods into useful outputs, they could process those raw inputs and add value to them, turning them into a product and increasing their earning potential. In more recent years, businesses have often become service providers and, in some exceptional cases, experience creators, as they look to create more value for their customers. In a passage introducing the concept of the Experience Economy in the Harvard Business Review in 1998, B. Joseph Pine II and James H. Gilmore use the humble birthday cake as an illustration of this evolution:

*The entire history of economic progress can be recapitulated in the four-stage evolution of the birthday cake. As a vestige of the agrarian economy, mothers made birthday cakes from scratch, mixing farm commodities (flour, sugar, butter, and eggs) that together cost mere dimes. As the goods-based industrial economy advanced, moms paid a dollar or two to Betty Crocker for premixed ingredients. Later, when the service economy took hold, busy parents ordered cakes from the bakery or grocery store, which, at $10 or $15, cost ten times as much as the packaged ingredients. Now, in the time-starved 1990s, parents neither make the birthday cake nor even throw the party. Instead, they spend*
$100 or more to “outsource” the entire event to Chuck E. Cheese’s, the Discovery Zone, the Mining Company, or some other business that stages a memorable event for the kids – and often throws in the cake for free. Welcome to the emerging experience economy.

In this seminal piece, Pine and Gilmore go on to present a framework for understanding this process in terms of pricing and competitive position. In the graph they present, prices ranging from Market to Premium are plotted along the x-axis, while the competitive position ranging from Undifferentiated to Differentiated is plotted along the y-axis. Nearest to the point of origin, commodities occupy the position with the lowest price, at the standard market rate, and a complete lack of differentiation. Goods obtain a somewhat higher price and obtain a slightly more competitive position. Services are another step up the chain, with more value creation and differentiation enabling them to fetch higher prices in the market. Experiences, as of now, represent the most highly differentiated and most highly-priced offerings for which a person can pay.

3.2 Experiences require a deep understanding of the customer and their needs

Designing and delivering compelling, differentiated experiences depends on developing a better understanding of the customer and her core needs, and then crafting offerings that meet those needs in a fulfilling way. This approach stands in stark contrast to the functional orientation that many companies use when developing products and services.

The companies that have prioritized customer needs as the driver for their offerings have relied heavily on two methodologies developed over the last few decades. The first is human-centered
design, which often manifests specifically in the form of the design-thinking process. While the discipline of design has always prioritized human wants and needs, it was primarily understood as an aesthetic pursuit until Tom Kelley and IDEO created and popularized the design-thinking process. The design-thinking process made design’s empathetic approach to innovation more accessible and it has been eagerly adopted by the business world.

Design-thinking aims to align human needs, business considerations, and technical feasibility in such a way that makes the success of the final offering more likely. “It puts understanding context and continuous engagement with humans at the heart of the practice—for determining what problem to solve, what metrics drive success, and what business will emerge from solving the human problem” (Brautigam). It is a collaborative process and depends on the integration of the design, engineering, and business perspectives to achieve a fulfilling outcome for the customer.

The second methodology, called Jobs-to-Be-Done (JTBD), was formulated by Bob Moesta and popularized by Professor Clayton Christensen. The JTBD approach builds on insights from two professors of Management: Peter Drucker, who said, “The customer rarely buys what the company thinks it is selling him,” and Theodore Leavitt, who said, “People don’t want to buy a quarter-inch drill, they want a quarter-inch hole.” The methodology aims to help a business uncover its customer’s true intentions when buying a product or service so that it can better shape the offering to meet the customer’s needs. The goal is to create the perfect offering for the customer to “hire” to finish a “job.”
Describing the competitive advantages of the JTBD approach, Christensen asserts that the jobs customer hire products and services to do are very stable over long periods of time, so they are not vulnerable to product lifecycles in the same way that function-oriented products are. He also says that products are easy to copy, but integrated solutions oriented around finishing a “job” for the customer are defensible and differentiated (Christensen). This observation supports the idea that unique, thoughtfully-designed experiences are what many customers want to buy today.

Regardless of the methodology that a business uses, the top priority must be developing a rich understanding of the customer’s emotions, needs, wants, life context, and journey. The company as a whole must become human-centered and make every effort to escape the functional, product-oriented approach that most companies use. Instead of prioritizing the extension and maintenance of their line of offerings, companies must be obsessed with finding problems people need solved, whether they know it or not, and then developing solutions that fit perfectly into their lives.

For the purposes of this thesis, I will use the term “customer” when referring to the people that companies must design for. I do this in part to distinguish between people generally and those people who are engaged in experiences, and in part because the relationship between a person and a company is becoming much more important, and the term “customer” is the most appropriate for describing such a relationship. However, it is my view that companies ought to use the terms human, people, or person whenever possible, in order to reinforce and extend the human-centered orientation that will be necessary to succeed, and as a reminder that the
customer is first and foremost a person, who, as Margaret Gould Stewart says, has a life outside of interacting with the company.

3.3 Defining the characteristics of experiences

To effectively discuss experiences and how companies can design them, it is essential to define what an experience is. Because experiences integrate elements from so many fields, they have been studied by scholars and practitioners from many disciplines. From an academic perspective, there is no universally-accepted definition of an experience, though a survey of papers from multiple fields found alignment on key characteristics: experiences are subjective, holistic, conscious, emotional, and dynamic (Nicolás & Aurisicchio).

In the following sections, I will offer my definition of experiences, in particular from a business and design perspective, by exploring their primary characteristics.

3.3.1 First and foremost, experiences treat customers like human beings

Experiences are important and fundamentally different because they treat customers as humans with personalities, feelings, histories, desires, fears, and ambitions. One example of a truly human-centered business is the Society of Grownups, a venture that was developed by MassMutual, with assistance from IDEO, to help young adults make smart money decisions. The goal is to establish trusting relationships with young adults that would need help with financial decisions in the near future as they start their careers. The Society of Grownups aims to understand their personal needs and offer advice to them, whether they are dealing with student debt, making their first investments in the stock market, or planning to buy a house. The first
iteration of the concept was a well-designed, welcoming office where people could go to chat with financial advisors for free. People only become “customers,” in the traditional sense, when they ask the financial advisors to help them start accounts, make investments, etc. Nonetheless, they are treated as customers from the moment they walk in the door – or the moment they visit the new website to find online classes, as they do in the current iteration. While less personal than a face-to-face interaction, the current model aims to scale the relationship building process in a way that makes it more sustainable for the company.

3.3.2 Experiences extend from a customer’s perception, through interaction, to recollection

Despite the agreement about some of an experience’s key characteristics, some significant disagreements remain about the boundaries that determine when an experience begins and ends. According to one definition, the “product experience” is limited to the immediate interaction – for example, when a person picks up and uses a device or when they are speaking with a service provider (Hassenzahl). An alternative definition contends that an experience extends temporally, in both directions, to include the person’s first perception and awareness of the experience and to their final recollection of it (Carbone).

The second, more expansive definition of the experience mentioned above is more accurate and complete from a human perspective than the “product experience” approach. Experiences should be defined as extending temporally beyond the interaction with a product or service to include a person’s first perception of the offering through all memories of it. As Pine and Gilmore state, “Even though the work of the [company] perishes with its performance… the value of the
experience lingers in the memory of any individual who was engaged by the event.” (Pine & Gilmore 2011, 18)

A compelling example is the experience of travel: it is very difficult to argue that it could be limited to include only the time that a person is physically at a destination. Essential parts of the travel experience take place long before setting foot in a new place – and long after. The first moment of the travel experience happens when someone becomes aware of a place they might want to go. That moment might happen months, years, or even decades before the actual trip takes place. The dreaming, planning, anticipation, packing, and transit phases are all essential elements of the pre-trip experience. Similarly, the final moment of the travel experience happens the final time someone recollects what the trip was like, perhaps when discussing it with a family member or when they encounter a souvenir or photograph from the trip.

3.3.3 Experiences consider the customer’s journey and context

One of the problems with the more limited definition of an experience is that it disaggregates closely connected pieces that clearly compose a larger experience. What is more is that the pieces are disaggregated in a way that is inconsistent with how humans think about them. When traveling to an incredibly beautiful and remote mountain lodge, it would be difficult for a guest to separate the experience of traveling to such a singular destination from the overall experience at the lodge. The remote mountain lodge that does not take transportation to and from its location into account, leaving the guest to navigate challenging circumstances in order to arrive and return home, will deliver a substantially inferior experience to the guest when compared with a similar lodge that provides a reliable means of transportation to its guests (unless they are in the
market for adventurous, improvisational travel, in which case it is a savvy move).

Accordingly, in order for an experience to effectively extend beyond the products or services involved, the customer’s journey and context must be considered relevant to the experience itself. Though some experiences require all of a customer’s attention, not all do, and those that do not would do well to understand more about how their experience relates to the other aspects of the customer’s life.

3.3.4 Experiences create value beyond the functional for the customer

Another way that experiences must fit into the larger context of the customer’s life is by creating value beyond accomplishing a functional goal. In some instances that might mean simply framing an offering in a way that indicates an understanding of the customer’s true intentions, as in the “drill vs. hole” example cited in section 3.2.

In another instance, it might mean that the company adds to the offering in a meaningful way that creates additional value, by making some aspect of the customer’s life better. British Airways, for example, “used its base service (the travel itself) as a stage for a distinctive en route experience, one that gives the traveler a respite from the inevitable stress and strain of a long trip” by pampering guests and pioneering in-flight entertainment (Pine & Gilmore 2011). This clearly goes beyond the functional value of getting from Point A to Point B and augments that outcome with an improvement to the customer’s situation.
3.3.4.1 Experiences appeal to psychology and emotions of the customer

An experience can appeal to the immediate psychological and emotional needs of the customer, as in the British Airways example, or to even higher order needs. Returning to the example presented in section 3.1, the birthday cake provides a perfect example of how any offering must consider the mental and emotional needs of the customer. While Pine and Gilmore presented the transition from birthday cakes baked at home from scratch with common farm goods to birthday cakes made from premixed ingredients sold by Betty Crocker as relatively seamless, that wasn’t entirely the case.

After an initial period of rapid growth upon their introduction in 1947, sales of cake mixes leveled off in the mid-1950s. This prompted one company to turn to Ernest Dichter, one of the forefathers of American consumerism, to conduct customer interviews to uncover the reasons for the slump. He found that women felt an “overwhelming weight of moral and emotional imperative to bake cakes from scratch” (Shapiro 80), and the premixed ingredients made it too easy. Looking for a way to ask more of the customer in the baking process so as to alleviate their sense of guilt and to make it more emotionally satisfying, some companies removed the dried eggs from the premixed ingredients. Others created the ideal of the multi-layer, decorated cake, a photo of which still graces the front of cake mix boxes today.

Another strong example of understanding user needs is shown by America Online (AOL) in the design of their original Internet offering. While many companies thought of their competing offerings as functional services and priced them based on usage, AOL understood that customers wanted a social experience (Pine & Gilmore 2011, 52). By giving their customers the
opportunity to make up to five “screennames” and creating a massive chatroom infrastructure that allowed them to connect with friends and strangers alike, AOL became the introduction to the web for many people.

3.3.5 Experiences engage the customer, though the level of engagement varies

An essential element of experiences is their ability to engage the customer. No matter what kind of experience it is, the customer is invariably involved in the production of the experience. What does vary is the way that they are involved or engaged. Pine and Gilmore classify these types of engagement into four different “realms,” plotted into four quadrants. On one axis is a range from “Immerse” to “Absorb,” and on the other is a range from “Passive” to “Active” (Pine & Gilmore 2011).

By their definition, the passive and immersive quadrant constitutes an “aesthetic” experience, and can be exemplified by the environment at the center of a NASCAR race track, where the fan is surrounded by sights, sounds, smells, and more, but is not participating directly in the race itself. In the passive and absorb quadrant are “entertainment” experiences. In contrast with the NASCAR fan in the center of the track, a fan in the grandstands would be “absorbing” the race from a distance, with relatively less sensory stimulation.

In the active and immersive quadrant, the authors placed “escapist” experiences. Illustrations of escapism could be anything from immersive simulations found at theme parks to extreme sports trips. Finally, in the active and absorb quadrant are “educational” experiences. Any small-scale,
active learning experience could be used to illustrate this category, including laboratory experiments.

Regardless of which category an experience falls into, it must find a way to engage the customer to fulfill the promise of being an experience.

3.3.6 **Experiences are unique, subject to each customer’s perception and interpretation**

“No man ever steps in the same river twice, for it’s not the same river and he’s not the same man.” - Heraclitus

In much the same way that no person can stand in the same river twice, it is impossible for any person to have the same experience twice, no matter how effectively the company manages it. Not only do experiences require orchestration of many different variables, but they are very subjective and depend heavily on the perspective, disposition, and participation of the customer.

Consider concert attendance. A fan of the artist Rihanna who lives near New York City might be so dedicated that, when Rihanna comes to New York City on tour and plays the same show all weekend, three nights in a row, the fan buys a ticket for each night. Even if the show itself is executed both nights flawlessly, many factors could alter the experience for the fan. Does the fan have the same kind of experience in the day leading up to the second concert as she did in the first? She could be basking in the glow of the first night, or not feeling well from enjoying herself too much. The time between waking up and the concert is likely to go differently – what effect will that have on her mood? How do her expectations change? Does she go with the same
people? Is the crowd more enthusiastic, or less? Are the people sitting around her friendly and dancing with her, or are they reserved, or even worse, judgmental? Is she listening more closely and picking up on new details, or simply enjoying the ambiance, already having seen the concert once?

These questions touch on a small number of the variables that might affect the fan’s perception and interpretation of each of the concerts. Indeed, she might even lump the three concerts together as a single experience that persists throughout the weekend. The point here is to emphasize that experiences truly are unique and subjective.

3.3.7 Experiences contribute to a larger customer - company relationship experience

Due to the emotional nature of experiences, they have a high impact on the customer’s attitude toward the company. When a customer has a good experience with one of a company’s offerings, that creates the foundation for a larger relationship between the customer and the company by establishing trust and affinity. Research has shown that positive experiences can lead customers to increase their patronage of a company by 87%, while negative experiences result in a loss of business over 70% of the time (Beaujean, et al.).

Once established, a relationship grounded in trust often proves to be a differentiating factor. “For bank customers, ‘a brand I feel close to’ and ‘a brand that I can trust’ were the top drivers for bank differentiation on customer experience,” according to a McKinsey report (Pulido, et al.). That trust and brand affinity make it easier for the company to design and execute future experiences, as customers are often willing to share more information about themselves that can

Tucker 36
be used to tailor experiences to their preferences. New technology will make it possible for companies to capitalize on this relationship even more, but only if they prioritize the customer part of the customer experience.

REI is an example of a business that has exceeded at creating relationships with its customers founded on mutual admiration and trust. Rather than requiring data about its customers to deliver consistent treatment, REI empowers each of its employees to act in a customer-oriented way by providing honest, personal insights into gear, activities, locations, and more. REI is also a co-op that allows its customers to share in the success of the business, and it fosters such strong connections that customers often volunteer to give free clinics on recreational activities because it has created a place for them to connect with other people passionate about the outdoors (Merchant). The REI model will not work for every business, but every company that wants to deliver experiences successfully would do well to think about how it relates to its customers.

3.3.8 In sum, experiences are holistic and create the basis for a relationship between customer and company

The elements discussed above come together to reinforce the general characteristics of experiences that were cited at the start of this chapter - holistic, emotional, and subjective, in particular. Indeed, without a holistic view of the experience, the designer will fail to engage the customer emotionally, which likely means that the customer will perceive the experience negatively as it will feel incomplete. The elements that have been added focus on the role of engaging the customer and initiating or strengthening a relationship between her and the company.
4 The Challenge of Experience Design

"It is one thing to talk about experience design; embracing it in one's practice is quite another. Expanding the sphere and responsibilities of design to include such experiential concerns carries with it a very real burden – a whole new level of complexity, especially if we factor in the broad range of emerging technologies that are involved. It really requires a rather different mind-set and range of concerns than those that traditionally have driven the practice of design and engineering." (Buxton 11)

4.1 Few companies have engaged seriously with experience design

The concept of experience design emerged significantly in the literature in the late 1990s and early 2000s (Pine & Gilmore 1998, Carbone, Prahalad & Ramaswamy). Despite the imperative of experience design discussed in depth so far, few companies have engaged in it, let alone prioritized it, in recent years.

The following sections postulate possible reasons for the lack of experience design, but they should not be considered final answers. The question of why companies haven’t engaged heavily with experience design will be included in a later section that expands on suggested topics of future study.

4.1.1 Experiences are subjective, making quality control difficult

Section 3.1 described a graph in which economic offerings progress from commodities to products to services and, finally, to experiences (Pine & Gilmore 1998). In the graph, prices
ranging from Market to Premium are plotted along the x-axis, while the competitive position ranging from Undifferentiated to Differentiated is plotted along the y-axis. One could add a second y-axis that charts increasing subjectivity. A commodity is incredibly standardized by definition; there is little room for subjective interpretation. A product leaves a bit more room, as mass production and quality control constrain most subjectivity, but different cultural contexts could introduce subjective interpretations. Nonetheless, subjectivity is unlikely to be too individual and disparate. Services are even more subjective because they are often both intangible and dependent upon human execution and interaction, as well as more difficult (but not impossible) to standardize. Experiences, however, with their dependence on context and individual perception, are incredibly subjective, as covered in section 3.3.6.

Even meticulously designed experiences that can control the vast majority of variables are subject to risks. Disney itself cannot keep kids from getting sick or sunburned at Disney World, despite controlling nearly every other aspect of the theme park experience. Very few companies can hope to achieve the kind of experience design (and control) that Disney does in its theme parks, so subjectivity and quality control are even more challenging topics for them. It is possible that this plays a role in the lack of experience design seen in companies so far.

4.1.2 Businesses are not prepared for real relationships with customers
The subjectivity of experiences is largely due to their personal, emotional nature. The emotional connection and stimulation the experiences create means that companies will have to shift away from purely transactional exchanges with customers and instead create the basis for a more long-term customer-company relationship. This is an extremely difficult shift for many organizations

Tucker 39
to make, as it requires a very different way of working. Indeed, every human being struggles with at least a few of the relationships in their lives, if not all of them, at one point or another. Businesses may have an even harder time – very few have done it successfully so far. Relationships depend on mutual understanding, trust, treating others well, and progression towards greater intimacy. Rather than getting to know customers, treating them as valuable humans and individuals, giving them a way to get closer and more involved, many companies have instead chosen to focus on investing in CRM infrastructure and data gathering, ostensibly in an effort to enable employees across the company to treat customers consistently. Unfortunately, that is not a human-centered way of thinking about relationships, and both companies and customers are likely to remain unsatisfied when the “relationship” relies primarily on that approach.

4.1.3 The subjective and holistic nature of experiences makes them complex

A truly holistic, well-executed experience is incredibly difficult to develop because of its complexity. Experience design considers all of a customer’s senses, emotions, context, and more, and in the process, it accounts for an enormous number of variables. Figure 2-1, despite its incompleteness, begins to show the many aspects of an experience that often must be considered and orchestrated: software interfaces and back-end architecture, hardware, physical space and architecture, human-to-human interaction, and communication materials, just to start. Combined, those variables constitute a more dramatic scale than most designers have encountered, as most specialize in just one of the sub-disciplines mentioned in Figure 2-1. When considered from this perspective, it becomes clear that experience design is, in effect, complex system design, and it exhibits the same interdependencies and nonlinear tendencies as each decision presents multiple options and resulting paths forward.
The shift to this complex, holistic, and relationship-oriented approach represents a large shift in the role of design, as well as in the expectations of what businesses must do. To successfully design and shape experiences that resonate deeply with a customer at an emotional and psychological level, businesses must create deep relationships with their customers that permit them to find and solve problems in meaningful ways. They also must take into account the complexity of the contexts they need to shape, and develop approaches that match the scope and scale of the problem.

4.1.3.1 Technology represents one layer of that complexity

While it was presented earlier as a culprit in the creation of the hypercompetitive environment that makes experiences necessary, digitalization represents a massive opportunity for experience design. In his book “Smart Things,” Mark Kuniavsky states, “We are at the beginning of an era of computation and data communication embedded in, and distributed through, our entire environment” (Kuniavsky 3). This era will be known as the era of ubiquitous computing. The proliferation of computing platforms, from laptops and smartphones to smart and connected devices, will allow designers to shape our contexts in ways that were not possible before. Additionally, with interactions intermediated by software and sensors embedded everywhere, designers will be able to collect data that helps them to understand how customers interact with the experience at a collective level, as well as how the experience might be tailored to individual needs and preferences.
Returning to the example of the Nest smart thermostat, it not only collects data about your lifestyle and preferences, but it uses machine-learning algorithms to tailor your environment to be just the way you want it at all times. On top of that, it adds even more value by helping to make the rest of your home just as intelligent through the creation of a connection point for an ecosystem of smart products. Increasing computing power, improved chip design, and powerful networking technologies can now put a computer in products even smaller than an audio earbud. Now, or in the near future, we will see “toys that talk back, clothes that react to the environment, rooms that change shape depending on what their occupants are doing, electromechanical prosthetics that automatically manage chronic diseases and enhance people’s capabilities beyond what is biologically possible” (Kuniavsky 4). When designers connect these devices and their collective intelligence to create holistic, seamless experiences, they create a level of personalization that is nearly impossible with which to compete.

4.1.3.2 The human element adds another layer of complexity

The evolution of control and participation plays a major role in the understanding of experience design approaches. Early experiences – especially those created by Disney in the 1950s and ensuing years – were largely passive experiences, what Pine and Gilmore would characterize as either aesthetic or entertainment experiences.

However, the political movements of the 1960s and 1970s initiated a moment of cultural divergence that both emphasized participation and spawned the technological trends that would enable mass participation at a scale the world had never seen before (Delwiche). Because they were initially met with resistance, often violent, these movements turned into subcultures. To
oppose the centralized order they were responding to, they created alternative approaches, and were largely responsible for the transformation of information and communication technologies (ICT) from large and relatively inaccessible monoliths to devices available to individuals.

Those devices have distributed the means of participation, as well as access to the entirety of the world’s information, to nearly every person on the planet. Not only do they have the means to participate, but universal connectivity allows them to coordinate and organize as well, either intentionally or organically. As a result, people have more agency and are smarter and savvier than ever before (Dabah, et al.). They want to be actively engaged in the processes that they are a part of, especially if that is the delivery of an experience. This engagement requirement presents a complex new challenge that some companies manage well, while others do not.

4.1.4 Companies must develop new capabilities

Delivering experiences as a core offering constitutes a disruptive change to the way most businesses are run today. In effect, each of the reasons that companies have not shifted towards designing and delivering experiences cited above is based on limitations imposed by their existing capabilities. Professor Clayton Christensen and Michael Overdorf (2000) have written about how companies can think about executing the transformation they need to meet disruptive changes. Their work hinges on three crucial aspects of organizations - resources, processes, and values or culture – and how they contribute to the development of new capabilities.

In “Meeting the Challenge of Disruptive Change,” Christensen and Overdorf say that capabilities are initially developed through the acquisition of the necessary resources – in this case, the
people with the skills and talents required to design compelling experiences. Over time, to scale the business as it grows, a company develops processes that act as repeatable “patterns of interaction, coordination, communication, and decision-making employees use to turn resources into” compelling offerings. Finally, those processes are translated into values and a culture that helps to scale them across a large organization. The goal is to allow employees to make “independent decisions about priorities that are consistent with the strategic direction and the business model of the company.”

It is not within the scope of this thesis to consider how companies ought to approach the development of new experience design and delivery capabilities with respect to their resources. It does, however, present and evaluate processes, tools, and values from related disciplines that could be adapted to help companies design consistent experiences, and to do so at scale across the organization.

4.1.5 Success and survival depend on designing experiences that can scale

Companies must design and offer experiences, and not just to avoid commoditization. They must expand their thinking in many ways. First, companies need to shift their understanding of their customer to a higher and more meaningful level than their direct interactions with a product or service. Second, they must shift to designing at a larger scale and scope than they have before, incorporating environments, ubiquitous and connected computing. Third, and finally, survival for many companies will depend heavily on their ability to create consistent experiences for customers across the entire enterprise, integrating the experiences with multiple offerings into one holistic customer experience.
4.2 The Experience Design Process

There is little in the way of literature about the process of experience design, possibly because many assume that the human-centered design process itself is sufficient. However, given the aforementioned complexity of experiences, it is my contention that the design process as it is currently practiced is insufficient and does not equip designers with the tools they need to manage the variables and interdependencies that experiences almost inevitably include.

Experiences, even with their impressive and overwhelming complexity, are not the most complicated things that human beings have developed. Arguably, that title belongs to aeronautical and aerospace systems, complicated feats of design and engineering that defy all understanding for the vast majority of people. Humanity’s incredible aerospace accomplishments were made possible largely by the field of systems design, which creates a framework for methodically considering and addressing the myriad challenges presented by projects like launching a rocket into space. The processes that foremost thinkers in systems design have developed are transferable to experience design and could make it more accessible to firms that want a well-structured process in place before adopting it.

Despite systems design’s close relationship to engineering, its application to experience design is not meant to be overly prescriptive. It merely provides useful metaphors for thinking about the creation of a thorough and repeatable experience design process. The framework that follows integrates key aspects of the human-centered design process that are essential for experiences with suggestions of how the systems design process might help companies to manage the experience design process. For deeper and more specific reading into optimal innovation
processes, I recommend Carlos A. Osorio's recent work, including “The Role of Cognition and Emotions in Explaining Innovation Process Performance,” and “Contextual, Procedural, and Behavioral Determinants of Innovation Performance: An Examination of the Literature.”

4.2.1 Step 1: Find the “Why” with Human-Centered Design Research

For an experience to be successful, it must be grounded in a compelling human need. In section 3.2, I summarized the human-centered design process and Jobs-to-be-Done approach as methods of uncovering and clearly stating the needs, or jobs, that humans have and products, services, and experiences solve. This step – discovering the “why” behind any offering – is crucial, both for viability and differentiation, but it is not new to any designer, so it will not be elaborated upon further here.

For readers that are unfamiliar with the design process and want to learn more, I recommend Steve Portigal’s Interviewing Users: How to Uncover Compelling Insights, as well as the “Design Thinking” chapter of Don Norman’s The Design of Everyday Things as good entry points.

4.2.2 Step 2: Map the customer journey

The journey map is another essential design tool, though it is often less familiar than the human-centered design research process cited above. Journey maps are used by many designers and design-driven companies, including Airbnb (Dill), though Google design strategist Golden Krishna claims that they are used less often than they should be (Risman).
A journey map or storyboard is a way of visualizing, in a series of drawings, a person’s daily life. The journey map can zoom in or out to different timelines and resolutions – either mapping out a few minutes to see how a brief interaction with a French press fits into their morning, for example, or sketching out a week to see how often they run into frustrations with tracking their workout. The journey map helps a team creating an experience to develop a more rich and complete understanding of the problem they are trying to solve for the customer, as well as to define an appropriate scope for the experience.

As computing truly becomes ubiquitous, it is becoming much easier for companies to reach their customers at any given moment. What used to be scarce – access to the attention of a customer – is now abundant through multiple devices and media channels, especially if they are already familiar with the company. For companies, that changes the question from, “How do we get the customer to notice us?” to, “When should we get the customer to notice us?” Experience designers must also grapple with a related question: “How much should we interact with the customer, or ask the customer to interact with us?” Even though they can extend the experience far beyond the core interaction, it is not always wise to do so.

An additional question experience designers must consider thoughtfully is how complete the experience should be. Indeed, “facilitating an experience and creating one are two very different things - designers should always consider which role they being asked to play at any given time in the design process” (Hassenzahl). In some cases, the customer may look to the company to take care of every aspect of the experience. One might imagine luxury vacations as the perfect example of a fully-crafted experience, as the customer travels to an unfamiliar place and expects...
to be free of all stress. In other instances, the customer simply looks for the company to facilitate the possibility of an experience that might not otherwise be accessible to them. Journey maps help to illuminate desirable outcomes from the customer’s perspective, which governs the success of the experience itself.


**4.2.3 Step 3: Develop wide-ranging concepts**

Once the problem is identified, and both the customer’s context and the appropriate scope of the experience are defined, the team designing the experience needs to develop a wide-ranging variety of concepts for it. Research has demonstrated that quantity yields quality when it comes to creativity (Jung, et al.), so the goal of this step is to think divergently and to develop a large number of concepts to sufficiently explore the opportunity space.

Many books and articles can provide greater insight into how to conduct this step effectively. Some focus on creativity generally, such as *Creative Confidence: Unleashing the Creative Potential Within All of Us* by Tom & David Kelley, while others propose specific types of thinking that result in the generation of creative concepts, such as *Lateral Thinking: Creativity Step by Step* by Edward de Bono.
4.2.4  Step 4: Down-select to the best concepts using an integrated “DFV” assessment

To pursue the concept with the greatest chances of success from a business perspective, the next step is to whittle down the large number of concepts generated in Step 3 to a manageable number that can be explored with slightly more depth. The development of any concept depends on the collaboration of the firm’s three broad disciplines: design, engineering, and business. To effectively evaluate the firm’s capabilities in delivering a concept, the next step is to perform an assessment of each concept’s desirability (the expected value it creates for the customer), feasibility (the likelihood that the firm can deliver on the operational and technical aspects reliably), and viability (the value the firm expects it can capture reliably). Typically, the team will conduct their assessment of each measure on a scale of 1 to 5 (e.g., a score of 5 indicating “very high” desirability). The two or three concepts with the highest cumulative scores are considered the best and move on to the next step in the process.

4.2.5  Step 5: Define and test critical assumptions to select best concept

Embedded in each concept and its assessment are critical assumptions about how the concept would work in practice. Some are essential to delivering the intended outcome, others can be modified to optimize the solution without compromising on its fundamental goal. To correctly categorize the assumptions embedded in any concept, the design team must do its best to decompose those embedded assumptions and evaluate them individually.

It typically becomes clear relatively quickly which assumptions are the key to making a concept work. Once they identify the top one or two most critical assumptions, the design team should begin a rigorous process of hypothesis definition, prototyping, and testing. The process should be
rigorous, but rapid, and quick to admit when to persist in trying to make something work versus concluding that the assumption has been invalidated. If, for example, a new exercise experience depends on customers rapidly picking up a new movement, but early tests show that people struggle with it and become frustrated, the team must consider whether they can find a better way of helping people to achieve it, or whether it is just infeasible in the time allowed and should thus be abandoned. By testing the most critical assumptions from the top two or three concepts in this way, the design team can move forward with the best concept based on evidence rather than gut feeling or bias.

4.2.6 Step 6: Define hierarchical design parameters

Once the most promising concept has been defined, the next step in experience design should draw on systems design by identifying and defining the hierarchical design parameters. In their book Design Rules, Professors Carliss Baldwin and Kim Clark use mugs as a way of illustrating this step.
Table 4-1: Design Parameters for Two Mugs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Mug 1</th>
<th>Mug 2</th>
<th>Parameter Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>x1</td>
<td>Ceramic</td>
<td>Plastic</td>
<td>All materials</td>
</tr>
<tr>
<td>Tolerance</td>
<td>x2</td>
<td>.5 cm.</td>
<td>&lt; .1 cm.</td>
<td>Varies with material</td>
</tr>
<tr>
<td>Mfr. Process</td>
<td>x3</td>
<td>Shape/bake/glaze</td>
<td>Injection mold</td>
<td>Varies with material</td>
</tr>
<tr>
<td>Height</td>
<td>x4</td>
<td>9.5 cm.</td>
<td>16 cm.</td>
<td>6-25 cm.</td>
</tr>
<tr>
<td>Vessel Diameter</td>
<td>x5</td>
<td>8 cm.</td>
<td>8.1 cm.</td>
<td>5-11 cm.</td>
</tr>
<tr>
<td>Width of Walls</td>
<td>x6</td>
<td>.3 cm.</td>
<td>.1 cm.</td>
<td>.01 -.5 cm.</td>
</tr>
<tr>
<td>Type of Walls</td>
<td>x7</td>
<td>Single</td>
<td>Double</td>
<td>Single, double, complex</td>
</tr>
<tr>
<td>Weight</td>
<td>x8</td>
<td>xx oz.</td>
<td>yy oz.</td>
<td>1-12 oz.</td>
</tr>
<tr>
<td>Handle Material</td>
<td>x9</td>
<td>Ceramic</td>
<td>Plastic</td>
<td>All materials</td>
</tr>
<tr>
<td>Handle Shape</td>
<td>x10 ... x12</td>
<td>Complex</td>
<td>Complex</td>
<td>Varies w/in 1-25 cm.</td>
</tr>
<tr>
<td>Handle Attachment</td>
<td>x13</td>
<td>Integral</td>
<td>Glued on</td>
<td>Various (glue, pins, etc.)</td>
</tr>
<tr>
<td>Cap/No Cap</td>
<td>x14</td>
<td>no cap</td>
<td>cap</td>
<td>Yes/no</td>
</tr>
<tr>
<td>Type of Cap</td>
<td>x15</td>
<td>-</td>
<td>Fitted internal</td>
<td>Fitted, hinged, etc.</td>
</tr>
<tr>
<td>Cap Material</td>
<td>x16</td>
<td>-</td>
<td>Plastic</td>
<td>All materials</td>
</tr>
<tr>
<td>Cap Diameter</td>
<td>x17</td>
<td>-</td>
<td>8.0 cm.</td>
<td>4.9 - 10.9 cm.</td>
</tr>
<tr>
<td>Cap Shape</td>
<td>x18 ... x20</td>
<td>-</td>
<td>Complex</td>
<td>Varies w/in 11 cm.</td>
</tr>
<tr>
<td>Large Hole Shape</td>
<td>x21</td>
<td>-</td>
<td>Square</td>
<td>All polygons</td>
</tr>
<tr>
<td>Large Hole Size</td>
<td>x22</td>
<td>-</td>
<td>1 cm.</td>
<td>.5 - 1.5 cm.</td>
</tr>
<tr>
<td>Small Hole Position</td>
<td>x23</td>
<td>-</td>
<td>180 ° from LH</td>
<td>All degrees from LH</td>
</tr>
<tr>
<td>Small Hole Shape</td>
<td>x24</td>
<td>-</td>
<td>circle</td>
<td>All polygons</td>
</tr>
<tr>
<td>Small Hole Size</td>
<td>x25</td>
<td>-</td>
<td>.2 cm.</td>
<td>.1 -.3 cm.</td>
</tr>
<tr>
<td>Vessel Color</td>
<td>x26</td>
<td>Blue</td>
<td>Black</td>
<td>All colors</td>
</tr>
<tr>
<td>Handle Color</td>
<td>x27</td>
<td>Blue</td>
<td>Black</td>
<td>All colors</td>
</tr>
<tr>
<td>Cap Color</td>
<td>x28</td>
<td>-</td>
<td>Black</td>
<td>All colors</td>
</tr>
<tr>
<td>Decoration</td>
<td>x29 ... x40</td>
<td>Complex</td>
<td>Complex</td>
<td>Many</td>
</tr>
</tbody>
</table>


The parameters listed above account for every aspect of a mug’s design and manufacture. The table presents two different mugs to compare and contrast how different design decisions within the hierarchy dictate the need to make other decisions. This is demonstrated by the different answers within the “Cap/No cap” parameter for the two mugs. Mug 1 has no cap, which means that the designer does not have to make any decisions about how to shape it – parameters \( x_{15} \) through \( x_{25} \), as well as \( x_{28} \), are now a moot point. Mug 2, however, does have a cap, and the
designer must define answers for those parameters. “Hierarchical parameters,” say Baldwin and Clark, “are the way in which designers delimit and thereby bound the space of designs they plan to search” (Baldwin & Clark 28).

Hierarchical parameters emulate another design approach developed by Christopher Alexander: the pattern language. In his book with that title, Alexander develops a hierarchical list of 253 patterns that classify every part of the design of urban spaces (Alexander). The pattern language attempts to create a holistic yet flexible way of facilitating design within the complex system that is urban environments:

“The elements of this language are entities called patterns. Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice.” (x)

Alexander goes on to say that the format – 253 patterns, arranged in hierarchical order, as a comprehensive whole – is meant to illustrate that “each pattern [is] connected to other patterns”:

“In short, no pattern is an isolated entity. Each pattern can exist in the world, only to the extent that is supported by other patterns: the larger patterns in which it is embedded, the patterns of the same size that surround it, and the smaller patterns which are embedded in it. This is a fundamental view of the world. It says that when you build a thing you cannot merely build that thing in isolation, but must also repair the world around it, and

Tucker 52
within it, so that the larger world at that one place becomes more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it." (xiii)

To illustrate how the pattern language works, consider the way that patterns at different levels are combined to generate the parameters for a porch (xxxv):

- Private terrace on the street (140)
- Sunny place (161)
- Outdoor room (163)
- Six-foot balcony (167)
- Paths and goals (120)
- Ceiling height variety (190)
- Columns at the corners (212)
- Front door bench (242)
- Raised flowers (245)
- Different chairs (251)

Once this combination is established, the designer of the porch has a context within to work and is able to adapt it to his particular situation, in this case his house. He goes on to describe the considerations made within each parameter, how they affect each other, and how the unique result fits seamlessly within the whole context of his property.

Pattern languages, with their multiple layers and interdependencies, represent an approach that aligns well with the scale and complexity of experience design. In much the same way that Baldwin and Clark defined a set of hierarchical parameters for the design of mugs and Alexander developed a pattern language for the design of urban spaces, companies must determine both the hierarchy and the parameters or patterns that will govern the design of their experiences. Parameters will vary widely for every company, and possibly between the experiences of one
company. Nonetheless, it is possible to guess what some parameters might be, arranged in no particular order:

- Brand
  - Logo
  - Colors
  - Images
  - Video
- Theme
  - Story
  - Characters
  - Mission/Purpose
- Space/Setting
  - Size
  - Décor
  - Arrangement
- Formal and Informal Representatives
  - Employee Disposition
  - Participant Role
- Products
  - Food
- Computing
  - Desktop
  - Mobile
  - Embedded
- Interfaces and Interactions
  - Continuity

These parameters are meant to serve only as examples for companies to think about the range of different scales involved in the experiences they design, not as a guide. The practice of developing company- or experience-specific design patterns and parameters will necessarily be continuously evolving individual efforts as companies develop a complete understanding of the scales that are relevant to their context and customers.
4.2.7 Step 7: Use a design structure matrix (DSM) to identify interdependencies

One comparative advantage of Baldwin and Clark’s hierarchical parameters approach is the ability to use a design structure matrix (DSM) to identify interdependencies between the parameters. Mapping the hierarchical structure of a design as demonstrated in Step 6 is just one step, as “there may be interdependence of design parameters without a strict hierarchy” (Baldwin & Clark 39). In that case, a designer may want to use the DSM to map out the design structure.

**Figure 4-1: Design Structure Matrix: A Map of a Portion of the Design Structure of a Mug**

<table>
<thead>
<tr>
<th>Design Parameter</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>1</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tolerance</td>
<td>2</td>
<td></td>
<td>x</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Mfr. Process</td>
<td>3</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>*</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Vessel Diameter</td>
<td>5</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width of Walls</td>
<td>6</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of Walls</td>
<td>7</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>8</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Handle Material</td>
<td>9</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Handle Shape</td>
<td>10</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


To quote Baldwin and Clark:

*To construct a DSM, one assigns the individual parameters of a design to the rows and columns of a square matrix. Then, going down the list, if parameter A is an input to parameter B, one puts a mark (an x) in the column of A and the row of B. One continues until all (known) hierarchical and interdependent relationships have been accounted for... The point of this figure is not to characterize perfectly the design structure of mugs.*

Tucker 55
but to show a typical pattern of parameter dependencies. The matrix was constructed by asking, with respect to each parameter: If this parameter were changed for any reason, what other parameters might have to be changed too? (40)

A design structure matrix may help a design team to visualize and think through all possible known interdependencies involved in the design of an experience. To apply this approach to an experience, consider the hypothetical planning of a music festival. Just to start, they must juggle finding a venue (which balances ideal space for hosting a large number of people with proximity and accessibility, acoustics, layout for multiple stages), booking bands (both big names and up-and-coming groups that will attract a diverse but overlapping crowd, enough of them to fill the entire weekend, within the anticipated budget), recruiting sponsors (while navigating audience tastes and PR controversies), and finding service providers (food trucks, security personnel, and mobile signal strengthening/amplification, among others), all under extreme uncertainty about the number of tickets sold (and thus budget). The interdependencies can quickly become overwhelming.

It is neither possible nor practical to reproduce more of Design Rules here, even though more of it will almost surely be useful to companies that utilize this methodology for designing experiences. The entirety of Chapter 2, “The Microstructure of Designs,” is an insightful resource for this kind of development process.
4.2.8 Step 8: Determine if modularity is the correct approach

For those that do go deeper into the framework proposed by Baldwin and Clark, it will become clear that for the design and development of many offerings, interdependencies will be heavily grouped within sub-domains of the larger design, with some links between those sub-domains. It is using this insight that Baldwin and Clark advocate for modularity. They define modules as “units in a larger system that are structurally independent of one another, but work together. The system as a whole must therefore provide a framework – an architecture – that allows for both independence of structure and integration of function” (Baldwin & Clark 63).

According to Baldwin and Clark, modularity has three main benefits: it “increases the range of ‘manageable’ complexity… by limiting the scope of interaction between elements or tasks,” it “allows different parts of a large design to be worked on concurrently,” and finally, it “accommodates uncertainty” (90). For sufficiently complex experiences, modularity may make the design and development process more manageable. By defining the subsystems and converting the hierarchical parameters into tasks, it is possible to create subsystem teams that can focus on development and collaborate when necessary. For example, the figure below shows how Baldwin and Clark divide tasks within modules of a laptop.
Figure 4-2: Mapping people to tasks: the organizational reflection of a complex task structure

Returning to the design of the music festival, the organizers may want to modularize development of the different pieces mentioned in a similar way: venue selection and design, act discovery and recruiting, vendor planning and management, and sponsorship relationship development. This approach would allow members of the team to focus on the tasks specific to their module, where the greatest interdependencies reside, while coordinating occasionally as a whole group to reconcile the connections between domains toward integration.

For more on modularity, the reader should again refer to Design Rules, Chapter 3, “What is Modularity?”

**4.2.9 Iterate**

Despite this linear presentation of the steps of the experience design process, a well-executed process will be anything but linear. Instead, it will be highly iterative, as no reasonable amount of analysis can provide as much feedback as prototyping and experimentation. For all of the known variables, functions, and interdependencies, many other unknowns will present themselves throughout the design and development process. In some cases, the unknowns will be catastrophic, throwing the entire process into disarray. In others, they will be mere annoyances that result in missed deadlines but do not compromise the project overall. Finally, some unknowns may reveal synergies and opportunities that were not otherwise clear. Regardless, every design team should plan to iterate continuously throughout the process and should develop habits and structures that surface feedback on their designs as quickly as possible.
4.2.10 Step 8A: Set design rules

As the design and development teams iterate, they become aware of previously unknown issues and interdependencies. To make the modular approach to development work, it is imperative that the company defines a set of design rules. These rules are developed over time, with increasing specificity, and create a common framework for everyone involved in the design and development process to use.

Baldwin and Clark define a complete set of design rules as one that addresses (77):

- Architecture: the modules that will be part of the system and what their roles will be;
- Interfaces: detailed descriptions of how the different modules will interact, including how they will fit together, connect, communicate, and so forth; and
- Integration protocols: procedures that will allow designers to assemble the system and determine how well it works, whether a particular module conforms to the design rules, and how one version of a module performs relative to another.

By defining this common language and a process for updating it with new information, the company can mitigate some of the challenges that might arise during a less-methodical design and development process.

4.3 Summing Up

The case has been made that companies that want to compete in the global, digital economy need to design and deliver experiences to customers, as it is one path that largely resists
commoditization and creates a sustainable advantage over intense competition. However, experiences represent a new challenge to the capabilities of most companies due to their expansiveness, subjectivity, and complexity. The experience design process described above melds the human-centered design process with the systems design process in an effort to make the work of designing experiences more approachable for hesitant or overwhelmed companies. However, the design of the experience is just the start; companies must then figure out how to deliver that experience to customers at scale to succeed.

5 A strategy for scaling experiences

For a company to grow, it must either find a way to replicate its offering and provide it to more people, or it must create and capture more value by further enriching its offering. For experiences, both can be challenging. Most companies are more comfortable developing and selling products and services that scale through repeatability. Indeed, “one of the main reasons why the music industry dislikes the shift away from the material [of CDs] is the limited scalability of experience. Once produced, a CD can be copied and sold in theoretically infinite quantities, while an artist can only play a limited number of concerts a year, with a limited number of paying attendants” (Hassenzahl). Experiences are a far more dynamic offering than most products and services, so they need a new strategy for delivering it successfully.

5.1 Being insufficiently dynamic can doom an experience

Howard Johnson, the diner and hotel chain with the distinctive orange roof, became the paradigmatic example of experience design in the United States during the 1950s and 1960s. In his book Clued In, author Lewis Carbone says that Howard Johnson became the “Host of the
Highway” as Americans began traveling farther and farther from home. The company located their restaurants and motels just off of busy freeways and turnpikes, creating an option for people looking for safety, cleanliness, and reliability in the unfamiliar places they traveled to, thanks to the new Interstate Highway System.

The Howard Johnson model identified visceral human emotions – discomfort, uncertainty, frustration – that people felt in this new age of travel with limited information, and eliminated them by supplying a reliable and enjoyable experience: wholesome food (except for the premium ice cream and popcorn to placate whiny children), clean rooms and restrooms, and solid amenities. Because reliability and comfort were essential parts of the experience, the company established consistent “clues” that were replicated in every location: “same or similar floor plans... the same products, recipes, and amenities, the same uniforms and décor, and... the same clientele” (Carbone). Carbone continues to say:

*When satisfying experiences were richly imprinted, they left customers with a penchant to repeat those experiences. Perhaps nothing better illustrates the power of experience-based loyalty in building businesses than the rise of national and ultimately international brands over the last 50 years.*

In short, Howard Johnson developed a relationship based on trust with American families traveling long distances for the first time. By delivering the holistic, emotionally-resonant experience of comfort when it was scarce, they became known as the place to stay for travelers.
Their downfall, however, came when they responded to changing market conditions and customer tastes by cutting costs. Penny-pinching let those essential elements that everyone associated with the brand promise of comfort away from home fall into disrepair. This undermined the experience and the trust they had built up over many years with their customers. “The Howard Johnson organization had little understanding of the experiential equity it had built, it had no context for how to react to competitors or how to sharpen its appeal to customers as their tastes changed and their experiential expectations became more discriminating” (Carbone). Despite the fact they had succeeded in creating an experience that customers valued, they did not truly understand the nature of that experience and the promise that they had made to their customers, so they were unable to adapt when the experience they needed to offer changed.

5.2 A dynamic strategy: creating a design platform

To be dynamic, experiences need to support progressive evolution for multiple reasons. First, to be customer-centric, companies must be able to evolve the experience over time to keep up with the customer’s changing needs and tastes. Second, there are many kinds of distributed participation in the development of an experience, from integrated product teams to fans and customers, that cannot be planned but need to be planned for. Third, it is often difficult, expensive, and unrealistic to create and deliver all of the elements of a complex experience at one time. Finally, and on a related note, the rapid pace of technology development allows us to connect and incorporate new technologies over time.
5.2.1 **Distributed and integrated product teams**

To effectively satisfy customers in our rapidly changing society, companies will need to develop the capabilities to move quickly and respond to customer input to develop new offerings and improve the ones that already exist. In short, they need to become more responsive.

Companies that want to achieve responsiveness will likely have to make at least two significant changes to organizational structure to do so. First, to create offerings that customers will value, companies will need to form integrated teams that focus on a specific offering, oriented around the customer. It will no longer be practical to expect the different disciplines—engineering, design, marketing, sales, finance—to work across organizational silos and still develop offerings that maintain focus on the customer. Some companies have already shifted to an integrated way of working, including Spotify and Valve (Arauz).

The second change will be a devolution of authority. Rather than being reserved for senior management, the power to make decisions will be distributed across the organization because “every time employees... have to wait for decisions and approvals by multiple people in multiple departments, it hurts the company” (Mocker & Ross) by hampering its ability to move swiftly. In most cases, authority will reside in the hands of the integrated teams mentioned above. These teams will have the ability to shape experiences for customers as they interact with the company across multiple situations.
5.2.2 Innovation ecosystems

Today, the participatory subcultures mentioned in section 4.1.3.2 are dominant, and heavily inform mainstream culture. Companies like Quirky, now shuttered, and Topcoder have been built on the basis of crowd participation. As digital tools have been democratized, they are increasingly used by individuals and groups to create and contribute to the things they truly believe in. Similarly, fan culture is more advanced than ever before. Themed “gangs” roam the streets of Disneyland covered in Mickey Mouse tattoos, events like Comic-Con draw massive crowds, and lightsaber battles are informally organized in Washington Square Park, NYC by Star Wars fans (Fraade-Blanar & Glazer). For many companies, this kind of appropriation and informal participation is deeply uncomfortable. However, it is a trend that they must figure out how to embrace, especially when designing experiences that must engage customers.

5.2.3 Companies must find a way to establish consistency despite decentralization

A consistent experience is important for many reasons, but perhaps the most important is the fact that a consistent customer experience is essential for maintaining the trust that underpins the new customer-company relationship. “Every time customers have to enter the same data twice, have inconsistent experiences when interacting with different parts of the business, or are forced to contact multiple people to get something done, it hurts the company” (Mocker & Ross). At the same time, experiences are extraordinarily complex, and it is becoming essential to let either front-line employees or the customers themselves get involved with developing them.
5.2.4 Building on current approaches: design systems and transmedia

To scale development of certain assets effectively, some organizations have developed resources called design systems. Typically used for graphic, identity, and user interface design, these systems create a pattern library for different components of the products that the company creates. The pattern library helps to define the styles designers can use and to show how certain elements change depending on context. Spotify has worked to develop a design system that works across its agile product squads, and its Design Director, Stanley Wood, has written and spoken publicly about the successes and challenges of the project (Wood). As more companies decentralize product development and facilitate ecosystems around their products, design systems are becoming more common and are being refined. They provide inspiration for a key part of the design platform concept.

Transmedia is the other main inspiration for the concept. It defines an approach to narrative development that transcends any particular form of media and invites audience participation in the development of new stories or artifacts (Jenkins). There are myriad examples of transmedia worlds, but Star Wars, Tolkien’s Middle Earth, and Disney are some of the most visible. They have a few common characteristics that are useful in thinking about the design platform. First, they create large worlds through a process of world-building, which uses immense creativity to imagine everything from the plants on the ground to the languages that are spoken, to the histories of cultures and kingdoms that make up the world. The reason for creating such an expansive world is to give participants plenty of space within which to create their own stories and unique elements. However, there are two mechanisms that are often used to constrain the available creation space. Disney, for example, helped to shape the Disney animated universe.
through the development of animation laws. The laws governed how objects moved within the animated universe and helped to establish consistency (Brownlee). A second important characteristic of transmedia is the story bible, the reference resource equivalent to a design system, which provides a comprehensive overview of the world, the characters and places within it, as well as dominant storylines and relationships (Phillips). This allows fans to build on what others have done while maintaining a sense of narrative cohesion.

The design platform concept builds on these ideas from design systems and transmedia. It also utilizes a core insight about platforms found in Baldwin and Woodard’s The Architecture of Platforms: A Unified View: it facilitates the “reuse of core components to achieve economies of scale while reducing the cost of creating a wide variety of complementary components.” It does so by defining an architecture for the experience, as well as a resource with common components to facilitate the development of the complements.

5.2.5 Platforms create an architecture

“The fundamental feature of a platform architecture ... is that certain components remain fixed over the life of the platform, while others are allowed to vary in cross-section or change over time. Thus, either by design or simply because it is the longest-lived component in the system, a platform embodies a set of stable constraints, or design rules, that govern the relationships between components.” (Baldwin & Woodard)

For a design platform, the design rules could take the form of a pattern language, covering every level of the experience that is relevant to the company and showing how each level is connected.
to the others above and below it. By layering the elements of an experience and establishing a hierarchy between them, the central organization can make it clear to decentralized participants, either inside the company or outside of it, as to how they should prioritize different components when designing an experience.

The language may also establish rules that freeze certain layers and make them consistent. For example, to maintain visible connections to other company offerings, certain aspects of the visual identity might be constrained, both with respect to manipulation and application. Depending on what the company wants to define and unify its experiences, it would have the opportunity to assert that within the design platform.

5.2.6 Platforms are a set of common components with which to create derivatives

In addition to the core architecture, the design platform could use a pattern library approach to disseminate components that are commonly used by participants to define different layers of the experience. These would not be prescriptive – only the core architecture would be pre-defined – but rather suggestions for approaches that help to make the design platform accessible to a larger number of people or applicable to a larger number of contexts.

5.2.7 Incorporating affordances for flexibility

"How can experiences be designed? As Hassenzahl points out they can’t be: they can only be supported. To use another design term: we can design in the affordances of experiences, but in the end it is up to the people... to have the experiences... Designers can help here as well, setting the framework, providing the initiative, providing
Ultimately, the design platform approach recognizes that it is impossible to design a complete, tightly managed end-to-end experience. Even if it were tried, it would be unlikely that everything will go exactly according to plan. Short of having a cadre of workers devoted to each customer, focused solely on precisely managing each variable and shielding the experience from outside interference, it would be nearly impossible to deliver.

To effectively shape an experience, experience designers will have to rely on constraints and affordances, which stand in for personal direction. Affordances are defined as “action possibilities provided to the actor by the environment,” according to James Gibson (1977). At Disney World, for example, ride designers have developed a creative solution to queueing that not only frees up employees from pointing guests in the right direction but enhances the experience of the ride itself. The winding, well-defined queues that guests encounter when they approach a ride makes it very clear what they are able and expected to do. It also creates an opportunity to set the stage for the story of the ride, and even provides the ancillary benefit of making people-watching at a global destination easy.

In the context of the design platform, affordances create spaces to engage customers by inviting them in to interpret guidelines in their own way and co-create value based on their individual context. The modules and portions of the experience that are variable provide critical opportunities for flexibility.
5.2.8 Facilitating participation, both inside and outside the boundaries of the firm

The design platform approach is intended to help companies scale dynamic experiences. By defining the stable elements and relationships and providing resources for development, the company can accommodate acceptable heterogeneity and evolution in the design of the experience. It permits the company to act as what Prahalad and Ramaswamy would consider a “node” that pulls together an “experience network.” It creates an “experience environment” that invites participation either by entrepreneurial product teams that are close to the customer, by complementary organizations, or by the customers themselves. Rather than trying to manage every aspect of the experience, this frees up company resources to focus on the elements that it is most equipped to provide and permits segmentation and even personalization (Prahalad & Ramaswamy). As of the time of publishing, I had yet to discover a company that had developed a design platform as I have envisioned it here, but I imagine that the nature of networked world means that it will happen, in some form or another, in the near future.

6 Opportunities & Future Research

6.1 Personalization & Contextualization

As companies embrace experience design, they will start looking for ways to personalize and contextualize their experiences for each individual. A few technologies already in development hold promise on that front.

First, ubiquitous, connected sensors will likely make it easier to manipulate experiences intermediated by technology. By using radio or wifi signals to detect activity levels, for example,
a home device may be able to sense when someone is depressed or at risk for health problems and provide nudges to friends or family to invite them out to socialize or exercise.

Second, artificial intelligence is widely considered to hold massive potential for shaping experiences by operating in the background of an experience, understanding context, and providing personalized services. Very early versions, primarily based on smart voice assistants like Apple’s Siri and Amazon’s Alexa, have made it easier to take actions by creating natural voice interfaces, as opposed to the ubiquitous graphical interface. Additionally, artificial intelligence may help companies to substantially scale the process of building relationships by creating human-like bots that can engage in conversation and learn about their customer in the process.

Third, and related to artificial intelligence, is “algorithmic design,” which might be able to personalize everything about a piece of software or digital media and tailor it to an individual’s specific tastes. By building in a range of design options and their potential combinations, designers could create dynamic experiences that even shift depending on a person’s context or mood.

The point about mood brings me to the final personalization opportunity: application programming interfaces, or APIs. APIs create a standardized way for different applications to interact, and they are often used to integrate new elements into an existing service. For example, if someone could determine how to turn our emotions into data, they could turn that data into an API that shapes an experience to our specific mood. For example, to alleviate the possibility of
embarrassment when interacting with an automated voice assistant, a combined measure of heart rate, cortisol levels for stress, and facial temperature could inform the program if the person is becoming embarrassed and take action to alleviate it.

6.2 Future Questions

In the process of developing this thesis, a number of questions came up that could provide promising opportunities for future research. The field of experience design is truly nascent, so there are many more questions to be answered. However, the ones that became clear to me throughout this process are shared briefly below.

6.2.1 Why do companies resist creating experiences?

As mentioned in section 4.1, few companies have engaged seriously with experience design, choosing instead to continue operating in the hypercompetitive market for products and services covered in section 2. Investigation of the reasons behind the resistance or hesitation towards experiences would be instructive for the field.

6.2.2 How successful is the experience design process outlined here?

While this thesis proposes a new approach to experience design in the hopes that it will become more accessible to companies, it was outside the scope to apply it in the context of developing a real experience. My hope is that future work will test this work in practice and propose refinements so as to make it more useful.
6.2.3 How does the development of a design platform work in practice?

In the process of writing this thesis, I was able to formulate the concept of a design platform by combining multiple tools, rules, and resources that companies have discussed publicly. I was not able, however, to find any companies that were using the entire approach I outlined. It would be worthwhile to help a company to develop a design platform and test it as an approach to designing experiences at scale.

6.2.4 How does the overall share of income spent on experiences shift?

While working on this thesis, I read Poor Economics by Esther Duflo and Abhijit Banerjee. In the book, they discuss the fact that the threshold for spending money on experiences and indulgences is much lower in poverty-stricken areas than one might expect. It would be instructive to understand how humans around the world decide to spend their money on experiences, and what share of income is spent on experiences at different levels of wealth.

6.2.5 What role does religion and/or community connection play in interest in experiences?

How does interest in experiences as commercial offerings differ between countries and communities with stronger religious and social ties and those more secular or atomized social structures? Because experiences often tap into desires for connection, meaning, and self-actualization, this could reveal real competition for experiences in certain markets.
7 Conclusion

The combined trends of globalization and digitalization have created an intensely competitive economic environment for any company that offers goods or services to its customers. Products both physical and digital can be easily and rapidly replicated, even when they are well-designed, thanks to digital tools and impressive manufacturing knowledge and capabilities around the world. Convergence, fueled by digital technologies, now brings companies that weren’t previously in the same market into direct competition. Together, these trends are fueling a process of commoditization that is making sustained business success elusive for many companies.

The answer to this challenge lies in providing customers with experiences, rather than products or services. Experiences are designed with humans in mind, taking into account their emotions, needs, desires, fears, context, personal history, and more. By identifying and solving real problems while appealing to humans in ways well beyond the functional, experiences provide the foundation for an intimate customer-company relationship. To do this effectively, companies must commit to being human-centered and obsessed with their customers, rather than committed to their products. This shift represents a substantial challenge for most companies, one which is amplified by the complexity of designing holistic experiences that account for rapidly-proliferating technology and customer desire to contribute and co-create outcomes with the company.

There are many possible reasons that few companies have engaged in experience design, ranging from complexity to discomfort with their subjective nature. However, to make experience design
more accessible, it is suggested that the human-centered design process and systems design be combined. The goal is that, by creating a more formal process that integrates critical systems design approaches, especially with respect to management of complexity and interdependencies, into the human-centered design process, companies will be more likely to experiment with experience design.

Once the experience itself is designed, a “design platform” approach is suggested to help scale it across the organization. The design platform establishes a pattern language that governs the interdependencies of different levels of the experience design, a set of rules that determine what parts of the experience must remain consistent at all times, and a shared resource that suggests how designers or customers might alter the variable parts of the experience to align with their needs. This model builds on graphic and user interface design systems, as well as concepts from transmedia and Disney’s animation rules.

These approaches are inspired by concepts found in many fields, but to the author’s knowledge, they have not been proposed in this way before. Future research should attempt to build on the proposals, and incorporate future technologies that might make the development of personalized and contextualized experiences much easier.


Tucker 79