

The Logistics of Creativity

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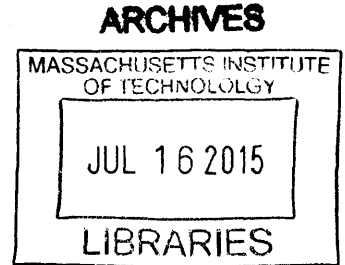
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Abstract

Retail fashion sales inherently involve the promotion and presentation of products that need to be differentiated from all other products in the crowded market. While the products themselves can exhibit some unique characteristics, the actual presentation of the products can help to make them appear unique and lend additional perceived value to them so that consumers will purchase them. Such a marketing technique requires an extreme commitment to creativity in terms of the methods of display and the associated non-sale items used to showcase the products available for purchase. For a particular fashion retailer, this manifests itself in the acquisition of specialty items that often become permanent elements of the display inventory. The commitment to the creative process is often at odds with the logistics required to procure, transport, install and store the display items which has resulted in a number of critical issues for the retailer. The resulting operational difficulties have reduced efficiency and increased the time required for logistics operations, and create unsafe conditions for the logistics team members. This thesis takes a closer look at the problem and its root causes, and suggests specific actions to ameliorate the current circumstances and build a foundation for improved operations in the future. Through analysis of mini-case studies and the behavioral aspects behind them, the thesis determines the root causes of the issues and identifies strategies to address them. The thesis identifies the overcrowded warehouse as the nexus between the creative and logistics teams and addresses the capacity issue within as the quintessential symptom of the problems facing the retailer. The thesis concludes by detailing recommendations for process improvement and the benefits therein.

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On behalf of Collin Brady:

I would like to thank my mother, Karen, who instilled in me to “go confidently in the direction of my dreams; live the life I’ve imagined” and father, Brian, who would give me the shirt off of his back without hesitation and has inspired me to always leave something better than I have found it. I would like to thank my brother, Nick, for sharing my dreams and always being a hero to look up to my entire life. I remember my grandfather, Patsy, who I wish could share this experience with at MIT. I would like to give a special thank you to Kezia for supporting my aspirations and being a keystone in this journey. I would not have wanted to do this without her and I know the sacrifices that she has made. I would also like to thank my Uncle Joe for guidance at a young age, most notably the importance of higher education and professional development. I appreciate my extended Brady family for continued support throughout my life in each and every endeavor. I want to acknowledge my best friends from back home and college who may have diverted my attention from the thesis but were instrumental in its creation. I also appreciate the thesis sponsor’s support for completing this project. The creative supply chain team was one-of-a-kind and I hope to cross paths with them again in the near future. Finally, I cannot stress enough the importance that my advisor, Dr. Roberto Perez-Franco, has had on this thesis and my education in general. Roberto became more than a mentor to me in this process and has been essential to my graduate education at MIT.

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1 Introduction

Retail fashion sales inherently involve the promotion and presentation of products that need to be differentiated from all other products in the crowded market. While the products themselves can exhibit some unique characteristics, the actual presentation of the products can help to make them appear unique and lend additional perceived value to them so that consumers will purchase them. Such a marketing technique requires an extreme commitment to creativity in terms of the methods of display and the associated non-sale items used to showcase the products available for purchase.

The subject of our thesis is one such retailer. For confidentiality purposes, throughout this document we will refer to the company as *HEFR* (an acronym for '*High-End Fashion Retailer*'). In the case of HEFR, their commitment to creativity manifests itself in the acquisition of specialty items that often become permanent elements of the display inventory. However, this commitment to the creative process is often at odds with the logistics required to procure, transport, install and store the display items which has resulted in a number of critical issues for the retailer.

HEFR has a number of flagship stores in a large city in North America. This city, which we will call Metropolis in the present document, is an important focal point for fashion trends globally. HEFR owns a warehouse in Metropolis that is dedicated to supporting the interior and display designs for those stores. While there are a number of facilities that support the stores in terms of actual sale items, this particular warehouse holds items purchased specifically to be used to display the company's retail wares. At present, the retailer is experiencing difficulties with regard to its supply chain and logistics efforts for the display items and within the warehouse itself.

HEFR's "Creative Logistics" department is a unique group responsible for receiving, transporting, storing, dispatching and final placement of items used specifically to market any and all of HEFR's products in retail stores, wholesale locations, private showrooms, and window displays. The company's main competitive advantage is selling a lifestyle defined by luxury. Because of the retailer's desire to

create and represent a lifestyle as opposed to simply selling fashion items, there are few limitations placed on the creative process with respect to the aforementioned display and showcasing components. Unlike the majority of its competition, the company supports selling the lifestyle through in-store prop decoration. The designs and displays fashioned by the creative team are among the most elaborate in the industry and are completely redesigned as many as eight times more often than those of the next closest market competitor. The company leases some of the items used for display but it also purchases and stores a large percentage of the items. As a result, the company has filled its 60 thousand square foot warehouse in the outskirts of Metropolis, hosting a myriad of items ranging from standard mannequins to a fleet of vintage motorcycles that all serve to support the display and sale of the luxury lifestyle.

The warehouse serves as a nexus where the creative design and the creative logistics teams interface. The items housed there are stored to support point of sale activities. The company's main focus is supporting its brand through enhancing the customer experience, which is quintessential to revenue generation. The high fashion industry benefits from high profit margins, which serve to obscure a number of operational costs. The real costs of practices that are in fact detrimental to the bottom line are often disguised by indirect cost accounting methods or rendered virtually invisible by the revenues and subsequent profits generated at the sales end. Because of these high profit margins, the costs are seldom examined and the contributing practices are accepted as normal. Little emphasis is placed on supporting roles like supply chain management for in-store decoration, particularly when the resultant store designs are considered to be major factors in drawing customers, reinforcing the lifestyle and ultimately increasing sales revenue. While the storage of items used in these designs and displays has proven to be expensive, the transport and installation of the items pose additional logistics issues beyond mere cost. In many cases, as we will see later, the impacts of these logistical issues are exacerbated by the behaviors, interactions, expectations and accepted practices of both the design and

logistics teams. According to one senior vice president at the company, the supply chain function would “never want to be the element that say[s] “no” when the business has a supply chain issue that is challenging the way they [want] to market their products and their brand.” (Handfield, 2012) The conflict between the company’s desired method of doing business with regard to its creative logistics function and the detrimental effect that method has in terms of warehouse efficiency, manpower necessity, and ultimately cost begs the inevitable question: how can HEFR’s creative logistics team continue to support the designers while simultaneously controlling the costs and managing the safety and logistics issues associated with the inherent inefficiencies imposed by the creative process both in the warehouse and with respect to store designs and operations?

We recognized early on that the problems in HEFR’s warehouse were the single most illuminating symptom of their prevailing logistics issue. Entering the warehouse, we saw the antithesis of the refined culture that the company embodies. Walking down the hall before coming to the main warehousing section, we had to walk carefully not only to avoid a life size wooden horse that hugs the corner (Figure 1), but also to navigate around an invaluable United States’ flag displaying only 13 stars.

FIGURE 1: MAIN HALLWAY INTO WAREHOUSE

The server room shown on the left of Figure 2 has been transformed from a storage unit for computer servers into a storage unit brimming with paintings and photographs, which are in utter disarray throughout the room.

FIGURE 2: COMPUTER SERVER ROOM (LEFT) & PICTURE ROOM (RIGHT)

Currently, HEFR estimates the warehouse to be operating at 40% over capacity. However, it was evident to us that this 40% over-capacity was a conservative estimate. The warehouse is managed by a small team from HEFR with an outsourced labor force that searches for and picks the items, loads the trucks, and coordinates delivery to the stores globally. The labor force is paid an hourly rate per employee.

The overcapacity of the warehouse is a major issue for the supply chain team to manage for several reasons, including unsafe working conditions, increased labor costs, increased shrinkage, slower delivery times, and limitations to the storage of future props.

Safety, typically a core value in companies, is compromised given the current state of the warehouse. With over 80% of the aisles cluttered with excess items as demonstrated by an example of

a cluttered aisle shown on the left of Figure 3, the workers of HEFR's warehouse are more susceptible to tripping, getting cut by a sharp object, and a multitude of other injuries. Additionally, the current state of the warehouse increases the risk to warehouse staff if a fire were to happen, both due to blocked aisles and access to extinguishers. Notice the obstructed fire extinguisher shown on the right of Figure 3.

FIGURE 3: OBSTRUCTED AISLE EXAMPLE (LEFT) & FIRE HAZARD (RIGHT)

In addition to safety concerns, the clutter in the warehouse is affecting the profitability of HEFR by introducing costly inefficiencies. Employee interviews revealed that the workers have to constantly move mounds of clutter from the aisles to reach the specific item needed by the creative team. The 'search and pick' process constitutes a major part of the cost allocation for the warehouse. The employees have to slowly navigate aisles, reposition items, and perform unneeded, repetitive tasks to reach the correct item, causing an inefficient and costly 'search and pick' process.

With the constant reshuffling of inventory comes a higher risk of damage to the inventory. The warehouse encapsulates items with a wide range of pecuniary values, which are not marked or easily known by employees. The increased clutter in the warehouse exposes employees to accidentally damaging property while traversing the warehouse. Moreover, the warehouse does not have a visual

system that displays item values, so the employees could potentially ruin an item that is worth thousands of dollars without even knowing it.

Furthermore, the creative team is also directly affected by the inefficiencies caused by the over-capacity warehouse. After the 'search and pick' process, the employees load the trucks or prepare the item for shipment to a global location. With all of the unnecessary processes leading to the 'search and pick', the stores do not always receive the items in a timely fashion. Some of the stores may have needed an item on a given day to complete a store setup, and the delay would cause extra strain and labor in the process.

Finally, the warehouse has reached critical capacity where the facility cannot physically support future procurement from the creative team. Each year the creative team buys approximately eight full truckloads of new antiques from a flea market in New England. On average, the company purges about three items per month through online sales. The rate of items entering the warehouse is considerably faster than the rate of items exiting. The supply chain team is concerned about this drastic imbalance and the future state of the warehouse becoming completely unnavigable. According to the supply chain team, the problem is compounded by the fact that there is not a plan in motion to purchase another warehouse to accommodate future procurement. The warehouse is currently at a tipping point where future procurement cannot physically happen.

Both physically and figuratively, the warehouse is the intersection of the supply chain and creative teams of HEFR. The warehouse dynamics are essential to support the main focal point of the company, promoting the lifestyle of the brand. The situation is unique to *HEFR* as none of the company's competitors promote their brands through such an in-store decorative process.¹

¹ Organizations like museums and movie studios may seem similar at first, but they typically do not hold inventory for similar lengths of time, store the same volume of inventory, or need the same access that HEFR provides.

This thesis aims to investigate the reasons behind the current overcapacity of the warehouse and other logistics issues, to understand its effects throughout the creative supply chain, identify different levers that can be utilized to fix the current situation, and suggest a process to sustain the warehouse operationally moving forward.

2 Literature Review

While researching the specific issues facing HEFR's creative supply chain, we did not find relevant literature that covered the specific topic of managing the warehouse of a fashion retailer. The emphasis on selling a lifestyle and the associated creative mindset associated with it apparently result in a unique set of needs that has not been discussed in the extant business research literature. The combination of the procurement of one-of-a-kind items, short-term usage and long term or indefinite retention of those items combine to create this extraordinary set of circumstances. We did, however, research different warehouse configurations and ideals that could potentially improve the current warehouse situation.¹

2.1 Optimal Solution

The ideal solution to HEFR's warehouse capacity issue should both optimize the current warehouse and investigate a process to store future inventory acquisitions. According to Lee and Elsayed's paper *Optimization of Warehouse Storage Capacity under a Dedicated Storage Facility*, once capacity is reached in a main warehouse, it is more cost effective to lease a second warehouse for excess inventory than to continue operating over capacity. According to the creative supply chain team of HEFR, the solution of acquiring or leasing a second warehouse is not a feasible option for the HEFR supply chain team, due to the scarcity of warehousing space in Metropolis. So we investigated other possibilities.

2.2 Alternative Solutions

It is estimated that between 50 to 75 percent of total operating costs of a warehouse are attributed to workers browsing and selecting inventory (De Koster *et al.*, 2007). Fixing the current warehouse situation at HEFR will likely involve reorganizing the warehouse so that the employees can navigate the aisles better, the company can have less shrinkage, and warehouse managers can better track the inventory throughout the creative process. According to Mowrey and Parikh (2014), a team designed a system of aisles that were a mix between narrow and wide to optimize a warehouse. The system allows for less congestion in certain aisles so that workers can pass each other efficiently. The system proposed can be adapted to other warehouses, optimizing the delicate balance between space and labor efficiency (Mowrey & Parikh, 2014). The literature review showed that the design of rows in warehouses is constantly being innovated.

Hompel and Schmidt (2007) have claimed that arranging the space based on usage is important to minimize the distance travelled by employees. Clutter in the aisles, or aisles with too narrow of a width can dramatically reduce the efficiency of warehouse pickers. Constantly examining a warehouse's inventory based on throughput of the items is crucial to optimizing a warehouse for this purpose. The authors of the book *Warehouse Management: Automation and Organisation of Warehouse and Order Picking Systems* state that the capacity examination should also be based on products that are not needed for 'terminated campaigns'. By *terminated campaigns*, the authors mean obsolete products or items needed for projects that have not come to fruition (Hompel & Schmidt, 2007). According to the book *Warehouse Management*, one possible layout is to organize the warehouse with fast-moving items closest to the cross dock and slow-moving items farther from the cross dock. Figure 4 shows author Gwynne Richard's recommendations for a plant layout based on usage (Richards, 2011).

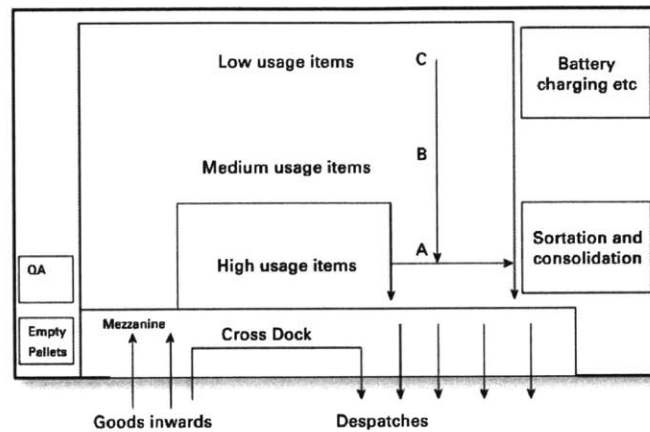


FIGURE 4: WAREHOUSE LAYOUT BASED ON INVENTORY SPEED

According to Axaster (2006), the true cost of holding inventory must be considered when designing a purge process for inventory that is rarely used and does not meet the low usage criteria. The book *Inventory Management* describes the cost of holding inventory. A company should theoretically only hold inventory to generate more revenues than the associated cost to hold the items. The major warehouse cost is the cost of capital. The amount paid for the stagnant inventory could have been used for a different part of the business. Additionally, there are other costs included with holding the item for extended periods of time including storage, handling, and damage. A company should only hold the item if the expected future value is greater than the total cost of holding the item (Axaster, 2006).

We also reviewed the literature on safety stock, given that some inventory items held by HEFR resemble safety stock due to the number of extra inventory kept in the warehouse in addition to the props already in use in the stores. Some items seem to be stocked to keep a high customer service level for the creative team. However, the high levels of safety stock cause excessive systems costs, which professionals from more standardized warehouses would not need to prepare for (Bijulal *et al.*, 2011). In HEFR's creative supply chain, the costs to hold the special inventory are not budgeted to the different creative teams. For example, a creative team uses its budget to buy an item, but does not pay for the

lifetime costs of holding the item. This thesis will explore the possibility of charging a team for the logistics costs. Author Paul Zinszer of Syracuse University describes the possibility of using activity based costing to charge for warehousing inventory (Zinszer, 1996). Authors Richard Tersine and Richard Toelle claim that the worth of the items must be analyzed against the costs of holding the items. For HEFR, utilizing holding costs will provide the option of buying a specific item with an annual holding cost to the creative team. HEFR's in-store decorative inventory has – on average – a relatively high value; therefore, further analysis will have to be done to understand the potential tradeoff of discarding the item without selling it at a salvage value. Determining a level of value where the item will be kept and not discarded will be crucial to an inventory purge process (Tersine *et al.*, 1986).

3 Research Methodology

Overview. Dul and Hawk (2008) make a distinction between theory oriented and practice oriented research methods. To dissect the warehouse issues in the case of HEFR, we conducted a practice-oriented case study approach (Dul & Hawk, 2008). The case study includes three main elements: interviews, conceptual modelling, and data analysis.

3.1 Research Approach: Case Study Method

Dul and Hawk (2008) explain that the case study method can be helpful when academic theory is limited and background information of the business situation is critical. They explain that the case study method can be especially useful for exploratory projects. The problem addressed in this thesis is what Dul and Hawk refer to as *practice-oriented research* (p. 24-27). According to Dul and Hawk (2008), the goal of practice-oriented research is “to contribute to the knowledge of one or more specified practitioners” (p.32). Dul and Hawk emphasize the importance of classifying a study as practice-oriented research rather than theory-oriented research because of limited generalizability with practice-oriented approach. Practice-oriented research is often an initial examination with practical recommendations that can be further investigated through additional studies (Dul & Hawk, 2008). Dul and Hawk explain that a theory-oriented study’s objective, in general, is “to contribute to the development of theory regarding” a specific topic (p. 32). This thesis will utilize what Dul and Hawk describe as practice-oriented research, since it seeks to contribute to the knowledge of a practitioner.

The goals of practice-oriented research as laid out by Dul & Hawk (2008) include:

1. to specify the problem as precisely as possible;
2. to identify its current phase in terms of the intervention cycle;
3. to identify knowledge needs; and

4. to prioritize those needs according to their urgency in relation to the phase in the intervention cycle to which the problem has progressed.

For the warehouse case study, two data collection methods were used: interviews and field studies.

3.2 Data Collection Methods

3.2.1 Interviews

Overview. Robson (2011) describes different interview types including the fully structured interview, the semi-structured interview, and the unstructured interview. Since the HEFR case study began with a very general question, we decided that the unstructured interview approach was the best option.

Interview Type. Robson defines the unstructured interview as one where “the interviewer has a general area of interest and concern but lets the conversation develop within this area. It can be completely informal” (p.280). The interview can be used to find a variety of aspects about the business including beliefs and attitudes. Salkland (2010) recommends using an *interview guide* for qualitative interviews, which is generally a list of topics to be covered with the interviewees.

Interview Medium. According to Robson (2011), the medium used to interview is a key consideration. Face-to-face interviews offer a dynamic approach to collecting information. The conversation can be adapted to information found from previous questions. The ability to follow up on ideas presented by the interviewee is an important difference when compared to static questionnaires. The interviewer should be mindful to not lead the interviewee into a certain answer based on an interviewer predisposition (Robson 2011). Salkland (2010) advises to build rapport with the interviewee, which face-to-face interviews can facilitate. Salkland describes that the interviewer should delve into incomplete interview answers using terse interrogatives like “How?”. Additionally, the

interviewer should cue the interviewee verbally if the interviewer wants the interviewee to continue with an answer. Finally, the interviewer should clarify the major points of the interview and allow enough time for the interviewee to clarify his or her stance on the data taken (Salkland 2010). While interviews can be used as a sole research method, they are best used in combination with other research methods (Robson 2011).

3.2.2 *Field Study*

Overview. Observations can complement interviews, especially since interviewees' actions in the field are oftentimes different than his or her responses to interview questions (Robson 2011). Salkland (2010) contends that field studies are useful to draw conclusions because externalities are not directly influenced by the participant.

Field Study Type. Robson explains that there are several types of *participant observation*, the least active of which is for the participant to be merely an observer. For this thesis, the "participant as observer" approach was chosen for the visits to the warehouse. The "participant as observer" approach is when a researcher studies an environment without participating actively in the events taking place in the environment. It is important for this field study type that the participant forms close bonds with the observed individuals so as to be able to gain verbal insights to the observed process.

Dimensions of Descriptive Observation. The main goal of a field study is to collect data about the focus of the research. Of interest here are Spradley's nine *Dimensions of Descriptive Observation*, listed below as they are cited in Robson (2011):

1. *Space.* Layout of the physical setting; rooms, outdoor spaces, etc.
2. *Actors.* The names and relevant details of the people involved.
3. *Activities.* The various activities of the actors.
4. *Objects.* Physical elements, furniture etc.

5. *Acts*. Specific individual actions.
6. *Events*. Particular occasions, e.g. meetings.
7. *Time*. The sequence of events.
8. *Goals*. What actors are attempting to accomplish.
9. *Feelings*. Emotions in particular contexts.

Robson explains that the original research question will dictate which dimension(s) to focus on in the field study.

Analytic Induction. Robson (2011) makes reference to a step-by-step process called *Analytic Induction*, which he outlines as follows (p. 326):

1. Formulate a rough definition of the phenomenon of interest.
2. Put forward an initial hypothetical explanation of this phenomenon.
3. Study a situation in the light of this hypothesis, to determine whether or not the hypothesis fits.
4. If the hypothesis does not fit the evidence, then either the hypothesis must be reformulated or the phenomenon to be explained must be redefined so that the phenomenon is excluded.
5. Repeat with a second situation. Confidence in your hypothesis increases with the number of situations fitting the evidence. Each negative one requires either a redefinition or a reformulation.

Field Study Instruments. Salkland (2010) explains that field studies are non-experimental but they can be empirical. Empirical methods include such data collection instruments as note-taking, asking questions, and using visual equipment.

We used this modelling approach initially to help formulate causal relationships.

3.3 Data Analysis Methods

3.3.1 Linear Model Analysis

Linear Model Analysis: One Cause. Dul and Hawk (2008) suggest modelling cause and effect relationships linearly as shown in Figure 5. The model includes one cause for each effect (p. 86.)

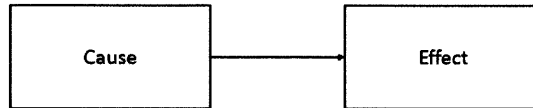


FIGURE 5: LINEAR MODEL WITH ONE CAUSE

Linear Model Analysis: Multiple Causes. Dul and Hawk (2008) suggest expanding the original model shown in Figure 5 by showing multiple causes contributing to one effect as shown in Figure 6 (p.86).

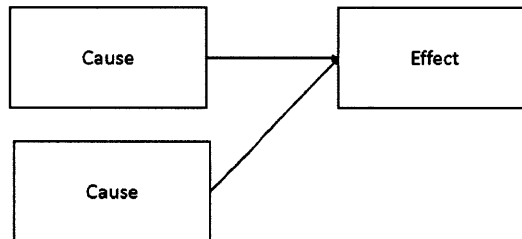


FIGURE 6: LINEAR MODEL WITH MULTIPLE CAUSES

Linear Model Analysis: Multiple Effects. Authors Dul and Hawk (2008, p.86) suggest expanding the model shown in Figure 5 by showing one cause contributing to multiple effects as shown in Figure 7.

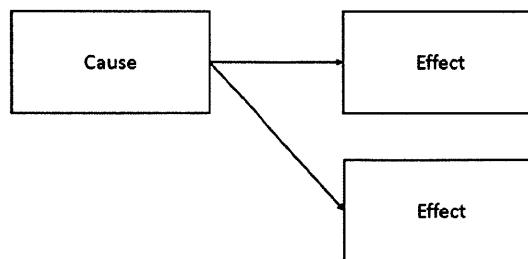


FIGURE 7: LINEAR MODEL WITH MULTIPLE EFFECTS

The linear relationships provide a groundwork for future causal loop analysis, which attempts to model both intended and unintended consequences of variables within the creative supply chain.

3.3.2 *Causal Loop Analysis*

A causal loop shows the relationship of variables within a system, modelling both endogenous and exogenous variables. The model consists of stocks, flows, variables, and relationship arrows. Causal loop analysis is important to model the unintended consequences of a system (Sterman 2000). Causal Loop Analysis is used in section 7.3 of this thesis; the resulting diagram is shown in Figure 70 (p. 106).

3.3.3 *Conceptually Clustered Matrix*

According to Miles, Huberman, and Saldana (2014), a conceptually clustered matrix can be useful to summarize key themes of analysis. They claim that the matrix can be built *deductively* and *inductively*. For our analysis, the matrix was completed inductively after interviews portrayed similar responses to questions. Our conceptually clustered matrix is shown in Table 4 in 4.3.4, on page 58.

3.3.4 *Folk Taxonomies*

Miles, Huberman, Saldana (2014) note that a Folk Taxonomy outlines semantic relationships between entities in the observed environment. It helps show relationship between these entities, especially when it is important for a researcher to understand the environment from data received in other methodologies. A folk taxonomy we prepared is shown in Figure 52, on page 65.

3.3.5 *Vignettes*

Miles, Huberman, Saldana (2014) describe vignettes as narratives that help represent the overall nature of the observed environment. The vignettes are typically focused on certain characters, spaces, or time periods. Several vignettes were used in this thesis. For example, in section 4.2.7 on page 51.

3.3.6 Extreme Case Analysis

Miles, Huberman, Saldana (2014) contend that extreme cases can help solidify a deduction. They specifically describe a strategy of “holding everything else constant” (p. 303). They explain that the researcher must develop these extreme cases and not just look for data that does not fit patterns. Extreme case analysis was used in section 4.5.2 on page 26.

3.3.7 Maynard Operation Sequence Technique

Tuan, Karim, Kays, Amin, and Hasan (2014) describe the Maynard Operation Sequence Technique (MOST) as a tool to measure the amount of work needed to complete a process. The tool can be used to improve efficiencies by reducing the work needed for tasks. Two categories of MOST include the general move and controlled move.

General Move. The General move accounts for an object moving freely in space. The move consists of a GET, PUT, and RETURN. The GET is denoted by A, B, and G; the PUT is denoted by A, B, and P; the RETURN is denoted by A. The parameters used to account for movements in the general move are shown in Table 1 (Tuan *et al.* 2014).

TABLE 1: GENERAL MOVE PARAMETERS

Notations	A	B	G	P
Description	Action Distance	Body Motion	Gain Control	Placement

Controlled Move. A controlled move accounts for an object as it is in contact with a surface or another item. The move consists of a GET, MOVE, and RETURN. The GET is denoted by A, B, and G; the MOVE is denoted by M, X, and I; the RETURN is denoted by A. The parameters used to account for movements in the general move are shown in Table 2 (Tuan *et al.* 2014).

TABLE 2: CONTROLLED MOVE PARAMETERS

Notations	A	B	G	M	X	I
Description	Action Distance	Body Motion	Gain Control	Move Controlled	Process Time	Alignment

MOST Units. MOST employs a unit known as a Time Measurement Unit (TMU). A TMU is converted to standard time units of seconds, minutes, or hours based on the conversion table shown in Table 3 (Tuan *et al.*, 2014).

TABLE 3: TMU CONVERSION TO HOURS, MINUTES, AND SECONDS

1 TMU	=	0.00001 hour	1 hour	=	100,000 TMU
1 TMU	=	0.0006 minute	1 minute	=	1667 TMU
1 TMU	=	0.036 second,	1 second	=	27.8 TMU

The MOST method was used to prepare the results shown in Table 5 on page 67.

3.3.8 Action Research

Action research is a method that “is thought to be especially suitable when the research question is related to describing an unfolding series of actions that are taking place over time in a certain group, organization or other community” (Eriksson & Kovalainen, 2008). Action research is particularly well-suited to understanding the process of change necessary for the improvement of the identified circumstance and therefore its application contributes significantly to “managers actionable knowledge” since “theory can be applied directly to practice in the field using a collaborative approach combining scholars and practitioners” (Raelin & Coghlan, 2006). Diagnostics and various methods of data collection are employed in order to identify specific problems and “solutions and empowerment strategies are then implemented to initiate and hopefully sustain positive change” (Saldana, 2011). A key point to note about action research is that the impetus behind its application “should always be the real-life-problems, not theoretically driven” (Eriksson & Kovalainen, 2008). Action research is not without its shortcomings, though. Two specific criticisms involve its inability to accurately construe causality or generalize results. The impact of these flaws is minimized in this project, however, since the purpose is to address the real-life problem first and then feed the theoretical research after the identification of a practicable solution.

3.3.9 Grounded Theory

The grounded theory tradition of qualitative research informed our approach while addressing the creative design issues at HEFR. Grounded theory is widely used and “consists of a specific set of procedures for carving out the inbuilt middle-range theory from and with the help of the empirical data” (Eriksson & Kovalainen, 2008). The nature of the research question is such that the establishment of a testable hypothesis would ignore the issues of the real-life problem. The grounded theory approach as intended by its founders “evolves during actual research and it does this through continuous interplay between analysis and data collection” (Corbin & Strauss, 1990). Grounded theory employs both induction and deduction in order to arrive at conclusions. While the repeated overlap of data collection and analysis might appear similar to that evident in other qualitative methods, grounded theory imposes a “specific procedural and rather formal form” that should result in “a generation of new theory ... irrespective of the field where the method is applied” (Eriksson & Kovalainen, 2008). This characteristic of the grounded theory approach also mitigates the flaw in action research noted above. Considering the derivative nature of the relationship between behaviors the budgetary implications evident in the research question, it is worth noting that grounded theory research was instrumental in tracing the connections between the budget process in organizations and the cultural contexts framing those process (Czarniawska-Joerges & Jacobsson, 1989). A thorough explanation of the approach and the derivation of theoretical insights that emerged from the data in each step of the iterative process will be included (Manuj & Pohlen, 2012). The methodology will avoid the exclusive use of any qualitative data “that produces little insight into the analytical approach, does not add significantly to our understanding of the phenomena under investigation, relies on description” (Manuj & Pohlen, 2012) and employs a “sleight of hand” that is descriptive rather than analytical and which militates against formulating in-depth analyses” (Barbour, 2001).

Both action research and grounded theory have continued to evolve since their individual inceptions, and have become more widely respected methodologies in business research. Despite the increased acceptance that comes with respectability, both methodologies require the application of some quantitative analysis in order to properly support the conclusions and accompanying recommendations. For the purpose of HEFR project, some of the data for this quantitative analysis will come from charting the results of tactical initiatives applied during the process. Those iterative applications will assist in the formulation of the overall strategic plan and help arrive at an answer to the research question. The successful conclusion of this process as applied to this specific business case can then be applied more generally, providing a framework for further study into alleviating the adversarial relationship between the creative and logistical forces that exist within many supply chains.

4 Data Collection and Analysis

In this section we will take the reader through the two field studies and two sets of interviews completed by us. The field studies take the reader on a journey through the warehouse. The use of photography is critical to highlight the direness of the situation at the creative warehouse. The interviews explore vignettes told by a variety of individuals from HEFR and its third-party contractor.

4.1 Warehouse Overview

4.1.1 Warehouse Location

Warehouse Background. The creative team’s warehouse is situated just a few subway stops from Metropolis’s downtown area – a city with one of the highest real estate costs in the world. The warehouse provides a geographically convenient storage facility for the Metropolis area, an area that encapsulates the highest density of the company’s flagship stores, and also for the flagship stores globally. The warehouse itself is 60 thousand square feet located catty-corner from where the entire fleet of fire trucks from the adjacent metropolitan area come for maintenance. The warehouse primarily consists of storage aisles, but also contains rooms for offices, paintings and pictures, items to be sold online, computer servers, and employee break rooms. Its blueprint is shown in Figure 8.

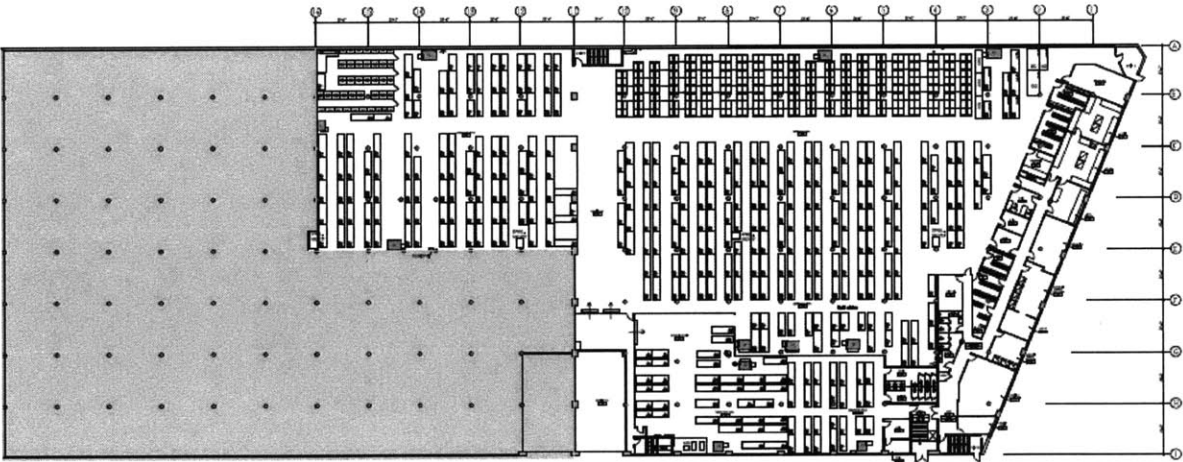


FIGURE 8: BLUEPRINT OF WAREHOUSE

4.1.2 Warehouse Workforce Structure

The warehouse is owned and operated by a third-party with one manager, one liaison to the fashion retailer, one to two managerial assistants, typically around 20 warehouse workers, and a security guard. The third-party warehouse workforce is complemented with one manager and one Asset Control System (ACS) owner from the fashion retailer’s side.

HEFR creative supply chain team falls under a senior vice president of supply chain and consists of a lead and a number of supply chain team members who are part owners of the warehouse processes but have other duties in various areas of the supply chain. The Warehouse Organizational Chart is displayed in Figure 9.

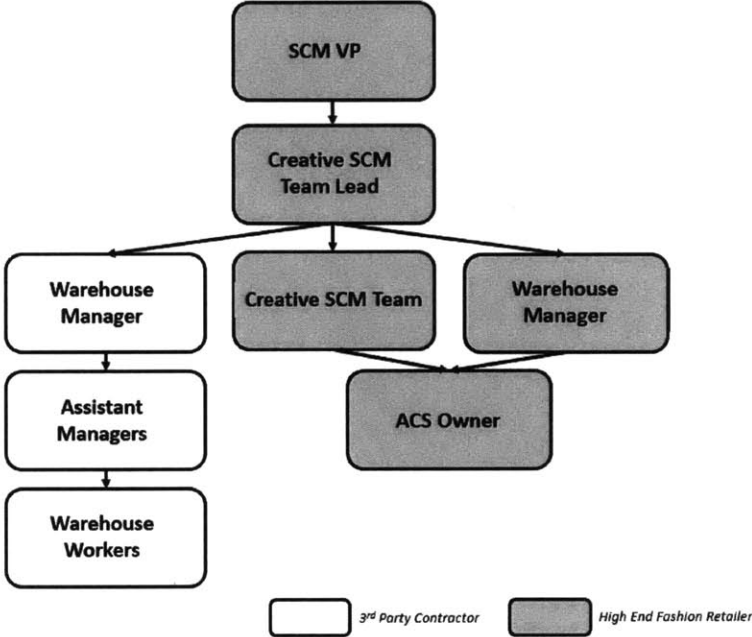


FIGURE 9: WAREHOUSE ORGANIZATIONAL CHART

4.2 Warehouse Field Study 1

4.2.1 Warehouse Field Study Procedure

The first field study was conducted to understand the entire warehouse process without interference. We observed the ecosystem of the warehouse to identify the natural state of the warehouse including processes, behaviors, and attitudes of the warehouse personnel. We also wanted to establish a rapport with entire warehouse workforce from both the third-party contractor and HEFR.

4.2.2 Warehouse Hallways

First entering the building, we noted the hallway used to access the main storage part of the warehouse. As shown in Figure 10, one of the entrances into the primary part of the warehouse has five life-size horses lining one side of the hall. After the line of horses, a box separates another yellow horse from first five. On the other side of the hall, wrapped paintings and a wide box further constrict the hallway.

FIGURE 10: HALLWAY ENTERING THE PRIMARY PART OF WAREHOUSE (1 OF 2)

Figure 11 displays the narrowest width in the hallway before entering the main storage area of the warehouse. The box and horse constrain the width for walking, which the participant observer had to turn sideways to walk through. It was estimated that the width of the narrowest part of the hallway was just over half the width of the door at the end of the hallway based on the box being relatively close to the door.

FIGURE 11: NARROWEST WIDTH IN HALLWAY

As shown in Figure 12, the other hallway used to access the main part of the storage facility is also lined with horses, fewer in number but wider than ones shown in Figure 10. Even though there are five rooms dedicated to posters and paintings, the hallway also contains residual paintings and pictures that have overflowed from the painting and picture rooms. The combination of life-size horse and boxes of paintings make the hallway too narrow for people to walk in two directions. If two people were to

approach each other from two directions, one would have to walk back to an open door to let the other pass.

FIGURE 12: HALLWAY ENTERING THE PRIMARY PART OF WAREHOUSE (2 OF 2)

4.2.3 Main Warehouse Storage Section

Entrance to Main Warehouse Storage Section (Figure 13).

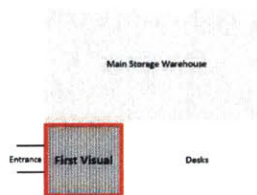


FIGURE 13: APPROXIMATE DIAGRAM OF SECTION DISCUSSED – FIRST VISUAL (OUTLINED IN RED)

Entering the main warehouse storage space, we discovered an atypical warehouse. Sitting at the forefront was a vintage truck that had been disassembled for storage, its various parts stored in a

common area. As shown in Figure 14, the cab of the disassembled truck sits in front of a shelf full of rolled rugs and baskets while the bed and fenders are stored on a shelf above the engine compartment.

FIGURE 14: FIRST VISUAL FROM MAIN STORAGE SECTION

Front Area of Warehouse (Figure 15).

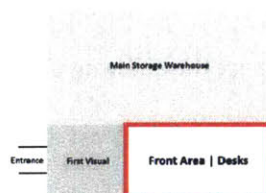


FIGURE 15: APPROXIMATE DIAGRAM OF SECTION DISCUSSED - FRONT AREA | DESKS (OUTLINED IN RED)

Desks are positioned outside of the offices for warehouse workers to complete paperwork. Situated at the front of the warehouse, these desks are encroached by a group of bubble-wrapped

bicycles as shown in Figure 16. Also seen in Figure 16, a fire extinguisher is blocked by one of the bicycles.

FIGURE 16: DESKS OUTSIDE OF OFFICES

To the left of the truck remnant is a hidden vintage military motorcycle complete with its sidecar. The motorcycle set is resting against the shelving unit with a bicycle laying on it as shown in Figure 17. The motorcycle and sidecar are directly against a shelving unit making it necessary to move the set to see or select an item from behind them. The sidecar is laying on its side potentially damaging the paint or denting the metal.

FIGURE 17: MOTORCYCLE AND SIDECAR LAYING ON SHELVING UNIT

4.2.4 Main Storage Section

Aisles from the Main Storage Section (Figure 18).

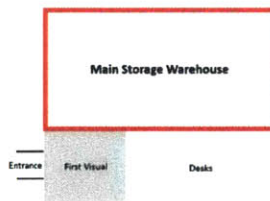


FIGURE 18: APPROXIMATE DIAGRAM OF SECTION DISCUSSED - MAIN STORAGE AISLES (OUTLINED IN RED)

Main Storage Description. The warehouse contains approximately 2000 shelving units. The typical aisle is separated by a main walkway. The shelving units spans approximately 75 feet on one side of the floor and 27 feet on the other side. The majority of the shelving is pallet racking that is four feet

deep. The ceiling is 14 feet high so the limitation for stacking is usually between 10 feet and 11 feet to allow for clearance of fire suppression sprinkler systems. The main storage section contains aisles filled with antique props of all different pecuniary values, sizes, ages, etc. As participant observers, we were shocked with how much volume the artifacts actually consumed. As we walked throughout the entirety of the section, it was clear that the warehouse was over capacity. We started to classify each aisle into three clusters: fully obstructed, partially obstructed, and passable with some obstructions. It is important to note that we did not notice any aisles without obstructions.

Fully Obstructed. A majority of the aisles were unquestionably impassable. A selection of pictures depicting impassable aisles are shown in Figure 19, Figure 20, Figure 21, and Figure 22. Red arrows were inserted into some of the figures to depict the intended walking direction of the aisle. Figure 23 displays a particularly egregious safety issue involving the “polar bear” in the left foreground of the picture. This bear, used typically in holiday-themed displays, is covered in glass shards allowing the bear to reflect light in random patterns. Despite the reality that simply brushing against the bear would result in cuts and abrasions, there is neither a cordon nor even a warning sign to ward employees from contact with the display item.

FIGURE 19: FULLY OBSTRUCTED AISLE (1 OF 7)

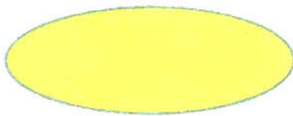


FIGURE 20: FULLY OBSTRUCTED AISLE (2 OF 7)

FIGURE 21: FULLY OBSTRUCTED AISLE (3 OF 7)

FIGURE 22: FULLY OBSTRUCTED AISLE (4 OF 7)

FIGURE 23: FULLY OBSTRUCTED AISLE (5 OF 7)

FIGURE 24: VANTAGE POINT (1 OF 2) OF FULLY OBSTRUCTED AISLE (6 OF 7)

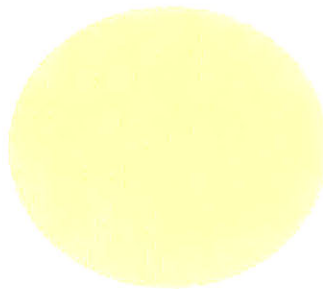


FIGURE 25: VANTAGE POINT (2 OF 2) OF FULLY OBSTRUCTED AISLE (7 OF 7)

Partially Obstructed. Some of the aisles were passable, but would be difficult to traverse without contortions. A selection of pictures depicting passable aisles are shown in Figure 26, Figure 27, Figure 28, Figure 29, and Figure 30.

FIGURE 26: PARTIALLY OBSTRUCTED AISLE (1 OF 5)

FIGURE 27: PARTIALLY OBSTRUCTED AISLE (2 OF 5)

FIGURE 28: PARTIALLY OBSTRUCTED AISLE (3 OF 5)

FIGURE 29: PARTIALLY OBSTRUCTED AISLE (4 OF 5)

FIGURE 30: PARTIALLY OBSTRUCTED AISLE (5 OF 5)

Passable with Some Obstruction. A majority of the aisles were passable without too much bodily contortion or requiring a person to move an object to be able to walk through an aisle end to end. A selection of pictures depicting passable aisles with some obstruction are shown in Figure 31, Figure 32, and Figure 33.

FIGURE 31: PASSABLE WITH SOME OBSTRUCTION AISLE (1 OF 3)

FIGURE 32: PASSABLE WITH SOME OBSTRUCTION AISLE (2 OF 3)

FIGURE 33: PASSABLE WITH SOME OBSTRUCTION AISLE (3 OF 3)

4.2.5 *Painting/Picture Rooms*

Meeting Rooms Conversion. The warehouse has six rooms that hold paintings and pictures.

Four of the rooms were originally designated as a storage space for the paintings and pictures whereas the other two rooms previously had other purposes. One of the rooms was originally designated to be a meeting room and the other a server room. After the original painting and picture rooms overflowed, the remaining paintings were stored in the meeting and server rooms. A selection of vantage points of different painting and picture rooms are shown in Figure 34, Figure 35, and Figure 36.

FIGURE 34: STORAGE SPACE OF PAINTING AND PICTURE ROOM (1 OF 3)

FIGURE 35: STORAGE SPACE OF PAINTING AND PICTURE ROOM (2 OF 3)

FIGURE 36: STORAGE SPACE OF PAINTING AND PICTURE ROOM (3 OF 3)

4.2.6 Computer Server Room

As previously stated in section 4.2.5, the paintings and pictures have overflowed to various rooms in the warehouse that were meant for other purposes. One of the rooms converted to a storage unit was the computer server room. The room is now fully obstructed with boxes containing framed pictures as shown in Figure 37. A technician sent into the room to work on a server issue would require the boxes to be moved to even reach the server system.

FIGURE 37: COMPUTER SERVER ROOM

4.2.7 Employee Lounge

Unknown Object. The employee lounge is frequented by the warehouse workers for short breaks. As shown in Figure 39, right outside of the warehouse is an object. Through interviews with the warehouse employees and managers, no one could identify what the object even was.

Standing around the object, the warehouse staff all guessed on what the object could be. One manager guessed it possibly came from a ship while the workers seemed to believe it came from an old industrial building. Everyone agreed that unknown objects like this frequented the warehouse.

Difficulty for Warehouse Workers. Unique objects like the one shown in Figure 39 can be found throughout the warehouse. This particular object demonstrates a quintessential piece of the warehouse. Like many other pieces in the warehouse inventory, it has an awkward weight distribution, an unknown financial worth, an unclear storage procedure, and unknown material composition.

Safety Concerns. The awkward weight distribution can cause potential strain to the crew required to lift the piece. The unknown material composition could potentially be lead paint or other hazardous materials that are dangerous to touch or inhale. Furthermore, the object itself is obstructing a major artery in and out of the warehouse, which could deter evacuation from the warehouse. Finally, we observed that the object covers the fire extinguisher hanging on the wall.

Refrigerator Shelving. Though not in the employee lounge, we discovered a refrigerator that doubled as a storage unit for props, shown in Figure 38.

FIGURE 38: POTS ON TOP OF REFRIGERATOR

FIGURE 39: UNKNOWN OBJECT OUTSIDE OF EMPLOYEE LOUNGE

4.2.8 *Ceiling*

Towards the end of a warehouse tour, we had pictures of most of the warehouse. At that point, the team thought enough data was taken to fully display the warehouse. However, looking up at the 14 foot ceiling presented a whole different storage type. Secured to the ceiling is a variety of boats scattered across the ceiling as shown in Figure 40, Figure 41, and Figure 42. The third-party warehouse manager described skull boats bought in Boston that had to be cut in half because of their length.

FIGURE 40: CEILING (1 OF 3)

FIGURE 41: CEILING (2 OF 3)

FIGURE 42: CEILING (3 OF 3)

4.3 First Round of Interviews

Overview. Interviews were used to gather anecdotal evidence of the warehouse dynamics. For the warehouse case study, we interviewed the supply chain, artistic, and third-party warehouse management teams. It is important to note that interviews were given with an evolving structure using qualitative interviewing with open questions. We utilized interviews at the beginning of the project to better understand the process and to formulate initial assessment.

4.3.1 Artistic Team

Ad Hoc Interviews. When initial attempts to hold formal interviews failed, we utilized what Patton (2002) calls *opportunistic or emerging sampling* to complete interviews in a spontaneous situations. The artistic team is the keystone to the creative logistics process. The creative logistics team's main objective is to serve the artistic team. Interviewing the artistic team was essential to understanding its needs, pain points, and relationship with the creative logistics team. The artistic team members were interviewed on an ad hoc basis due to time and availability constraints.

Results. The limited time with the artistic team did not provide a lot of data. The team members were mainly interviewed while decorating flagship stores. One artistic team member spoke to the importance of props and antiques to the retail spaces. Overall, the team supported the notion that the creative process was essential to the brand.

4.3.2 Supply Chain Team

Priority Interviews. We prioritized speaking with the supply chain team first to understand the current creative logistics process and to identify perceived pain points from the practitioners. Using a qualitative interviewing approach, we asked high level questions as to not lead the interviewees in certain directions. The supply chain team interviews consisted of interviewing the warehouse manager

(HEFR), the warehouse manager (3rd Party Warehouse Company), the Asset Control System owner (HEFR), the hourly warehouse laborers (3rd Party Warehouse Company), the truck drivers (3rd Party Warehouse Company), the members of the creative logistics team (HEFR), and the Senior Vice President of Supply Chain (HEFR).

Creative Supply Chain Team Lead. During an interview with the head of the creative logistics supply chain, he alluded to a time when the global lead for the creative side visited the warehouse. The lead noticed the number of vitrines and asked to have them lined up. The warehouse workers lined the vitrines, which spanned a warehouse wall. The supply chain team estimated that there were over 150 vitrines, many of which were nearly identical. The global lead awed over the serpentine line of glass cases and pronounced that there would be no further vitrine purchases since there were more than enough to choose from in residence at the warehouse. Despite indelicate expression of displeasure at the quantity of vitrines, there was no action taken to reduce the number. Additionally, the creative supply chain lead explained vitrine purchases continued within weeks of the global lead's proclamation and continue to this day.

Asset Control System Owner. The Asset Control System (ACS) is essential to the creative supply chain. The creative team can choose inventory by coming directly to the warehouse for selection or by choosing the item from a catalogue of pictures stored on the Asset Control System (ACS). About 90% of the time, the creative team member will make his or her selection in person. Figure 43 outlines the item selection process.

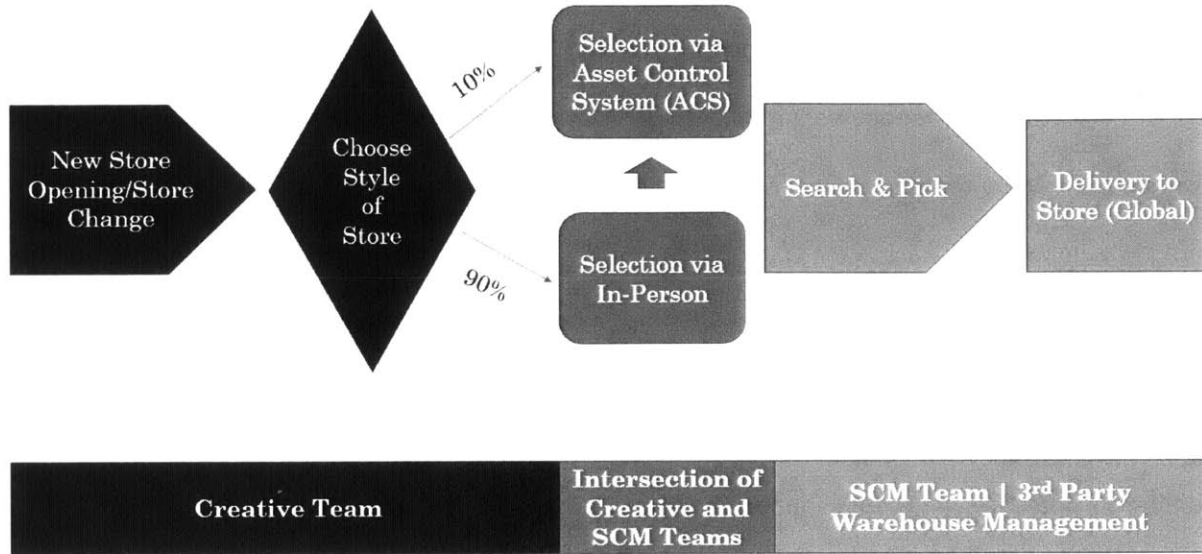


FIGURE 43: WAREHOUSE ITEM SELECTION PROCESS

Creative Team Part of Warehouse Item Selection Process. As shown in Figure 43, the warehouse item selection process begins with a new store opening or a store changeover. A store changeover is changing the store’s interior via in-store and window props. From interviews with the supply chain team, members said that store changes happen about once per month or month and a half. Additionally, new stores open that also require props to stage the interior.

Intersection of Creative and Supply Chain Management Teams. Continuing with Figure 43, the creative team can browse and select props in two ways including utilization of the Asset Control System (ACS) or selection in person by physically coming to the warehouse. The selection of items via the ACS consists of logging onto the computer system, browsing the inventory, and checking out the inventory. A majority of the items have pictures, item descriptions, and dimensions. The item also documents which project or person owns the item. There is a process so that the creative team can ask to borrow an item from the item’s owner. A request is generated and sent to the item owner for approval. Even when the creative team makes his or her selection in-person, the creative team still must check out the items via the ACS. It is important to note that the item can be physically changed from its original state.

A special request for this must be sent to the item’s owner. If the item does not have an item owner, the item can be changed without the special request.

Supply Chain Management and 3rd Party Warehouse Management. The third-party warehouse management team coordinates the ‘search and pick’ process in the warehouse. The team supports the artistic team when they are in the warehouse selecting items for current or upcoming projects.

4.3.3 Third-Party Warehouse Management Team

The main learning from our interview of the third-party warehouse management team was that their main objective was to fully support its client. The head of the team emphasized that the warehouse was severely overcapacity, but believed that his team was operating efficiently.

4.3.4 Conceptually Clustered Matrix

We constructed a conceptually clustered matrix to analyze each of the team’s high-level aggregate motive, career relevance, centrality, and attitude to changing the current situation of the warehouse. The matrix is shown in Table 4.

TABLE 4: INITIAL CONCLUSIONS FROM FIELD STUDY 1 AND INTERVIEWS

Participants	Motives (types)	Career Relevance (none/some/high)	Centrality (low/high)	Attitudes Toward Ability to Fix Current Warehouse Situation (Fav., Neutr., Unfav.)
Supply Chain Executives	Smooth Processes	Some	Low	Favorable
Creative Supply Chain Team	Appease Creative Team	High	High	Neutral
Warehouse Management	Appease Creative Team	High	High	Neutral
Warehouse Workforce	Appease Creative Team	High	High	Favorable
Creative Team	Fulfill Company Vision	Some	Low	N/A

We developed an intuition from the interview that the creative team has essentially created a situation where it is both the supplier and customer. We visualized the creative team as supplying itself with a 100% customer service level continually adding to its safety stock. We tentatively identified three key areas of improvement for the warehouse including a instituting a purge process, incentivizing the

creative team to use less warehouse volume, and highlighting the safety concerns riddled throughout the warehouse.

4.4 Field Study 2

Field Study 1 instilled a sense of urgency in us. The second field study was conducted approximately one month after Field Study 1. Whereas the first was exploratory, the second had the purpose of validation from the exploratory which we have outlined in the list above. It was used to refine certain intermediate conclusions, collect missing data, and ensure that process and behavior recorded from the first visit were repetitive and not one time occurrences.

4.4.1 Selection Process

The team also had the opportunity of viewing part of the item selection process as shown in Figure 44. In this specific case, the warehouse worker (on the right) was assisting the artistic team member (on the left) check out items from the warehouse. From Figure 43, the selection process shown in Figure 44 is demonstrative of the *Selection via In-Person* process flow.

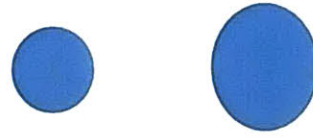


FIGURE 44: ARTISTIC TEAM MEMBER USING ACS TO SELECT ITEM

4.4.2 Vitrine Aisles

Walking the warehouse, we immediately noticed the shelves stocked with the glass vitrines alluded to in the interview with the head of creative logistics supply chain team. Few vitrines were unique; many were similar enough in shape and appearance to serve as replacements for each other. Paper was put into the vitrine presumably to not break the glass, but we did not receive an answer on the effectiveness of the process. The team's intuition was that the paper would not protect the vitrine from becoming broken.

FIGURE 45: AISLES OF VITRINES (1 OF 3)

FIGURE 46: AISLES OF VITRINES (2 OF 3)

FIGURE 47: AISLE OF VITRINES (3 OF 3)

4.4.3 *Segmentation by Ownership of Items*

Segmentation by Inventory Classification. During Field Study 1, the team noticed what seemed to be segmentation of items based on product classification. For example, the team noticed that all of trunks and pots were put in the same sections of aisles as shown in Figure 48.

Segmentation by Inventory Ownership. During Field Study 2, the team noticed that certain areas of the warehouse were segregated by either projects or project leads as shown in Figure 49 and Figure 50.

Segmentation by Inventory Type and Ownership. Furthermore, the team discovered a third inventory segmentation type based on inventory type and owner as shown in Figure 51.

FIGURE 48: SEGMENTATION OF TRUNKS AND POTS (FIELD VISIT 1)

FIGURE 49: SIGNAGE SHOWING OWNERSHIP OF SECTION

FIGURE 50: SIMILAR INVENTORY TYPE PARTITIONED BY OWNER

FIGURE 51: SIGNAGE REPRESENTING THE OWNERSHIP WITHIN SIMILAR INVENTORY

Folk Taxonomy of Inventory Segmentation. A folk taxonomy was used to assist the researchers' understanding of how inventory was organized within the warehouse. The folk taxonomy used for this conceptualization is shown in Figure 52.

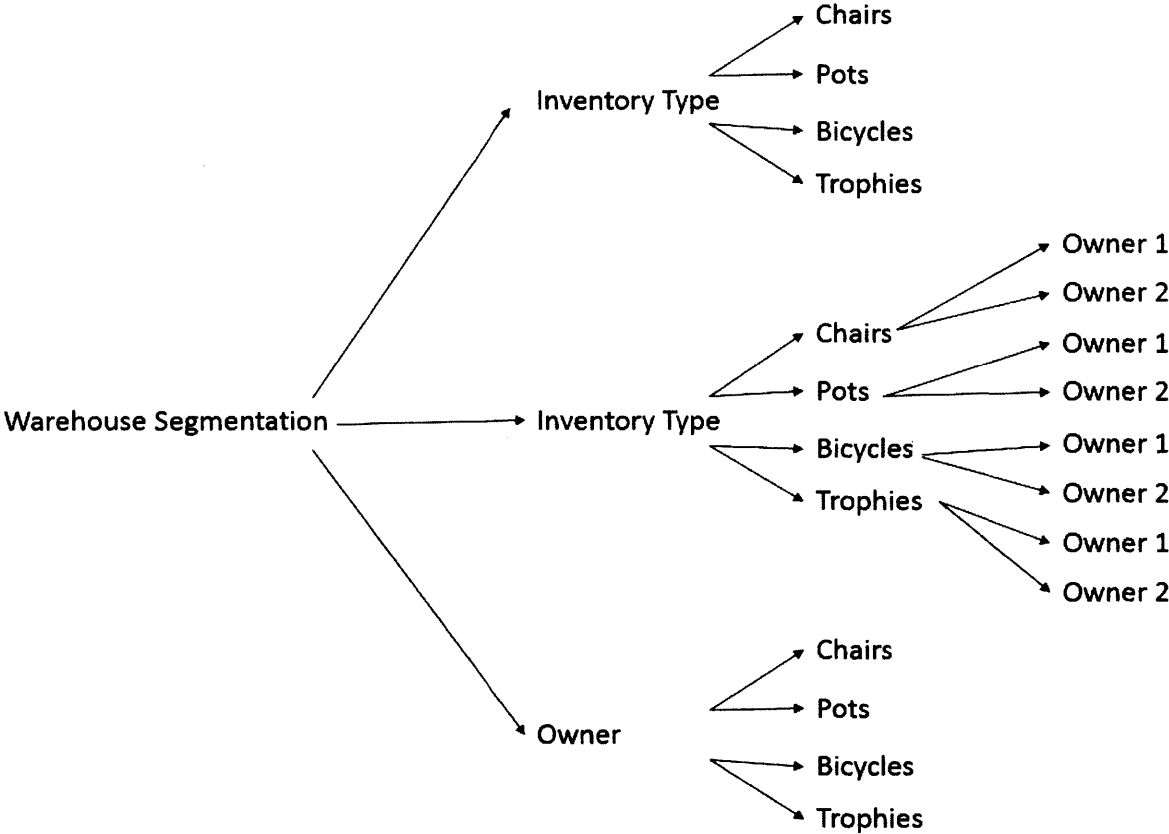


FIGURE 52: FOLK TAXONOMY OF INVENTORY SEGMENTATION

4.4.4 Time Study of Rugs

Utilizing MOST. We noticed a reoccurring theme that some items such as bicycles, pots, rugs, etc. were grouped by inventory type as demonstrated in Figure 52. The team decided to test how much workforce time could be saved by optimizing the inventory layout and process. We decided to test the initial conclusion by choosing one type of inventory item. The methodology used to test the process is the Maynard Operation Sequence Technique (MOST).

Applying MOST to Current Rug Inventory Process. The team outlined the current procedure used in the warehouse. Figure 53 shows the current setup for the rugs in the warehouse.

FIGURE 53: CURRENT RUG INVENTORY LAYOUT

The **current** procedure is as follows:

- 1) Grab a closely positioned ladder
- 2) Climb the ladder to reach rug
- 3) Pull the rug from the shelf
- 4) Climb down the ladder while holding the rug
- 5) Position the rug on the floor
- 6) Unravel the rug for the Creative Team

- 7) Ravel the rug up after the Creative Team finished viewing
- 8) Return the rug to the shelf by climbing the ladder while holding the rug
- 9) Position the rug back on the shelf
- 10) Climb back down the ladder
- 11) Aside the ladder

Assumptions for Current Rug Process. As shown in Figure 53, the process outlined would be difficult to complete. The boats are stacked on top of the rugs, which would need to be removed to pull out the rugs. Furthermore, laying a rug out would require rearranging objects located around the shelving units. For this MOST analysis, these obstructions are disregarded. Additionally, the team analyzed the process assuming that the average Creative Team member would require to view five rugs before making a decision. The MOST analysis for the current situation is shown in Table 5.

TABLE 5: MOST ANALYSIS FOR CURRENT RUG PROCESS

Step No.	Method Description	TMU	Method Sequence Model	Freq.	Total Time (Sec)
1	OBTAIN LADDER AND POSITION THE LADDER TO RETRIEVE THE FIRST RUG	570	A24 B0 G3 A24 B0 P6 A0	1	20.50359712
2	MOVE LADDER TO RETRIEVE ADDITIONAL RUGS	150	A3 B0 G3 A3 B0 P6 A0	4	21.58273381
3	CLIMB UP LADDER TO REACH THE DESIRED RUG	160	A0 B16 G0 A0 B0 P0 A0	5	28.77697842
4	CONTROLLED MOVE TO PULL THE RUG FROM THE SHELF DISPLAY	240	A1 B0 G3 (M10) X0 I0 A0 (2.00)	5	43.16546763
5	CLIMB DOWN THE LADDER WITH THE RUG	160	A0 B0 G0 A0 B16 P0 A0	5	28.77697842
6	POSITION THE RUG ON THE FLOOR	220	A0 B0 G0 A10 B6 P6 A0	5	39.56834532
7	UNRAVEL THE RUG ENOUGH FOR THE CREATIVE TEAM TO SEE IT	200	A1 B6 G3 M10 X0 I0 A0	5	35.97122302
8	RAVEL THE RUG UP WHEN THE CREATIVE TEAM IS FINISHED VIEWING IT	180	A1 B6 G1 M10 X0 I0 A0	5	32.37410072
9	RETURN THE RUGS THAT THE CREATIVE TEAM DECIDES THEY DO NOT WANT (GET RUG AND CLIMB LADDER)	380	A3 B6 G3 A10 B16 P0 A0	4	54.67625899
10	POSITION THE RUG BACK ON THE SHELF DISPLAY	200	A0 B0 G0 (M10) X0 I0 A0 (2.00)	4	28.77697842
11	CLIMB BACK DOWN THE LADDER	160	A0 B0 G0 A0 B16 P0 A0	4	23.02158273
12	GET AND ASIDE THE LADDER	360	A3 B0 G3 A24 B0 P6 A0	1	12.94964029
Total Time					370.1438849

Selecting an Optimal Process. We researched best practices for rug layouts in retail stores. The team found a rug display that included hanging rugs, allowing a worker to page through the rugs. The process eliminates the need to climb up a ladder multiple times, to unravel and ravel the rugs, and to replace the rugs on the shelf. An example rug display from rugracks.com is shown in Figure 54 (Display Corporation International).

FIGURE 54: ALTERNATIVE RUG DISPLAY RACK

The **proposed** procedure is as follows:

- 1) Page through the rugs
- 2) Confirm rug choice with Creative Team
- 3) Grab closely positioned ladder to retrieve the rug
- 4) Climb the ladder to reach rug
- 5) Pull the rug from the shelf
- 6) Climb down the rug while holding the rug
- 7) Aside the ladder

Assumptions for the Proposed Rug Process. The proposed method includes the Creative Team examining five rugs to make the analysis comparable to the current process which includes the same assumption. The proposed process is conservative due to the marginal additional time it would take for the warehouse worker or Creative Team to peruse an additional rug. The proposed method does not include the time saved from not having to move objects to position the rug on the ground, which is required in the current process. The MOST analysis for the proposed process is shown in Table 6.

TABLE 6: MOST ANALYSIS OF PROPOSED RUG PROCESS

Step No.	Method Description	TMU	Method Sequence Model	Freq.	Total Time (Sec)
1	PAGE THROUGH THE HUNG RUGS TO FIND THE DESIRED RUG	120	A6 B0 G3 A0 B0 P0 T3 A0 B0 P0 A0	5	21.58273381
2	CONFIRM RUG CHOICE WITH CREATIVE TEAM	833	WAIT TIME 30.000 SECONDS	1	29.96402878
3	OBTAIN LADDER AND POSITION THE LADDER TO RETRIEVE THE RUG	570	A24 B0 G3 A24 B0 P6 A0	1	20.50359712
4	CLIMB UP LADDER TO REACH THE DESIRED RUG	160	A0 B16 G0 A0 B0 P0 A0	1	5.755395683
5	CONTROLLED MOVE TO PULL THE RUG FROM THE SHELF DISPLAY	240	A1 B0 G3 (M10) X0 I0 A0 (2.00)	1	8.633093525
6	CLIMB DOWN THE LADDER WITH THE RUG	160	A0 B0 G0 A0 B16 P0 A0	1	5.755395683
7	GET AND ASIDE THE LADDER	360	A3 B0 G3 A24 B0 P6 A0	1	12.94964029
				Total Time	105.1438849

MOST Results. Comparing the MOST results from the current and proposed methods highlight the inefficiency in the current rug process. The current process takes more than 3.5 times longer than the proposed method when considering the examination of five rugs. The current process takes 6.17 minutes compared to 1.75 minutes for the proposed method. The more rugs looked at by the Creative Team will cause the multiplier of 3.5 to increase. Furthermore, the analysis is a conservative estimate because it does not include the need to move objects to make room to unravel the rugs on the floor. We obtained the warehouse workforce rate charged to *HEFR* and the number of rugs selected by the Creative Team in the 2014 fiscal year from the warehouse manager. Using an hourly rate of 30.53 USD and 1228 rugs selected per year, the warehouse could save or reallocate 7500 USD of labor per year.

The 7500 USD cost savings is conservative because it does not account for Creative Team members that went to the warehouse, perused rugs, but did not select one.

4.5 Second Round of Interviews

4.5.1 Asset Control System Owner

Vitrine Data. Based on the round one interview with the Creative Supply Chain Lead, we decided to interview the Asset Control System Owner again. The team specifically asked to pull the current vitrine data from the Asset Control System as shown in Table 7.

TABLE 7: VITRINE INVENTORY AS OF NOVEMBER 2014

	0-3 mo.	1+ yr.	2+ yr.	3+ yr.	3-6 mo.	6-9 mo.	9-12 mo.	Total
<i>GI</i>	4	6	1			2	1	14
<i>GRI</i>	40	8	4	8	15	7	6	88
<i>Retail</i>	12	11	1	3	2	1	4	34
<i>Showrooms</i>	10	3	1	2	2		2	20
Total	66	28	7	13	19	10	13	156

As of February 2015, the warehouse currently had 156 vitrines in storage. Vitrines are essential to HEFR stores; however, even with stores currently displaying vitrines, the company keeps 156 extra units in the warehouse. The stores that are currently open already have vitrines in them, making the 156 extra vitrines primarily to satisfy the Creative Team.

Overall Inventory Aging. We also learned about the aging of warehouse inventory. The ACS went live in March of 2011; therefore, data pulled from it only displays inventory aging for over 3 years. In conjunction with the ACS owner, the team decided to parse the items stored in the ACS by how long the items have been in the warehouse (inventory age). Figure 55 displays the breakout of the inventory aging data as of November 2014 (FY15).

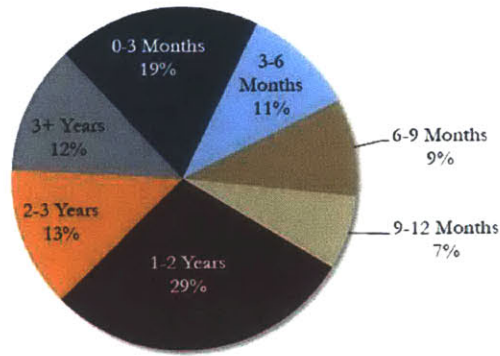


FIGURE 55: INVENTORY AGING BY DEPARTMENT AS OF NOVEMBER FY15 LIC

From Figure 55, 54% of the inventory in the warehouse has been there for over one year. 25% of the inventory has been in the warehouse over two years and 12% has been in the warehouse over three years.

4.5.2 Extreme Case Analysis

We posed a question to the supply chain team and the warehouse manager. The question was “If a Creative Team Member were to purchase an Olympic-sized swimming pool for five dollars, would they technically be allowed to store it in the warehouse?”

The answer we received was “yes” from each person interviewed.

5 Behavioral Field Study

While the methods employed in choosing and securing items from the warehouse and the circumstances surrounding the completion of those tasks are all indicative of the challenges facing the logistics and creative teams, the procurement, storage, transport and installation of newly acquired items are no less challenging. These challenges further elucidate the need for increased collaboration between the creative and the logistics teams. In theory, the procurement-to-placement process follows a simple set of steps that ensures the efficient use of resources. Creative team members make plans for a design whether for a store window, an in-store display or a home showcase and identify items to be used. Items are procured, typically from specialty auctions for rare items. Once an item is procured for a specific use, it is installed and remains until the display is changed. This specific circumstance would be considered the perfect path of the perfect piece, since the identified piece would have been labeled as the single best item for the display and the procurement-to-placement process would have been as efficient as possible.

The company has experienced such success on occasion, most recently with regard to a piece for a new store design. After shutting down a specific brand and starting a new one, the flagship store for the retired brand demanded a complete redesign to match the products in the new line. The new store vision was for an industrialized environment, complete with exposed piping and air ducts, tool fittings and riveted steel plates throughout the store. The designers located a compartmentalized wire frame rack sufficient to hold a number of sizes of a chosen garment that matched the envisioned décor perfectly. Shown in Figure 56, the rack was purchased at one of the aforementioned auctions and transported to the warehouse for temporary storage until the store construction was finished. Upon the completion of construction, the rack was placed in the store and has been in use there ever since, providing the perfect complement to the industrialized vision

FIGURE 56: WIRE FRAME RACK BEFORE & AFTER STORE OPENING

5.1.1 *Waiting for the Right One*

This process is not the norm, though, as the paths for other pieces have been far less efficient. Some pieces are purchased with no specific use in mind but are identified on sight as a “must have” by the designers. In one example, a 40-foot oak counter was so identified and purchased at auction. After making arrangements for an additional truck specifically to accommodate this period piece, the oversized and heavy item was transported to the warehouse. Because the item was marked for immediate (though as yet unidentified) use, it was stored for convenient handling and, therefore, commanded prime warehouse space. Throughout five years of constant repositioning inside the warehouse, numerous queries about its intended use and potential sale were met with adamant refusals to purge the unit. The item was repositioned to a more remote section of the warehouse where it sat for over two years. At that time, another new brand was introduced and display designs for the accompanying flagship store became necessary. The almost forgotten counter was a perfect fit for the designers’ vision. It was transported to and installed in that store where it has remained since the opening, representing an inefficient path for an eventually perfect piece.

5.1.2 *A Bridge to...Somewhere?*

The opposite characterization has also occurred with respect to procured items, as illustrated by the path of what has come to be called “The Brooklyn Bridge Table.” As shown in Figure 56, this one-piece table measuring almost twelve feet in length and weighing well over 1200 pounds was procured specifically for placement on the third floor of a new flagship store. The table was purchased and transported to the warehouse for preparation and storage during store construction, remaining in the dock area since it was marked for immediate use in a newly acquired space that was to house a flagship store as well as a themed restaurant and lounge.

The table, pictured below in Fig. 56, had to be carried by hand to the third floor of the new store by traversing a half-spiral staircase that wrapped around the back of a dual elevator shaft. This flagship store’s interior was adorned with hardwood floors and walls and any damage to any of the surfaces was deemed unacceptable.

FIGURE 57: THE BROOKLYN BRIDGE TABLE

Neither the elevators nor the railings around the elevator shaft had been installed, so the shaft was cordoned off with duct tape to warn construction workers to stay away from it. The logistics team members responsible for placing the table on the third floor had to carry it up and around the stairs without touching the walls around the staircase or the hardwood steps themselves, all while avoiding the open elevator shaft opposite the wall. Upon reaching the third floor with the table and placing it as instructed, the movers were informed that it had to go back down because it did not actually fit the design. The table was moved back down the stairs and back to the warehouse, again placed on the dock. In attempt to make this piece fit perfectly in its intended space, the design team requested that the table again be brought up to the third floor of the flagship store. Upon the second placement, the designers concluded that the table still did not fit the vision and requested that it be taken back to the warehouse again. After a third placement on the third floor and another subsequent failure to meet the designers' vision, the table was positioned in a remote portion of the warehouse. At that point, the designers requested that the table be transported to a different store. As shown in Figure 57, the table remains in use at that store and will most likely stay there due to the high cost and inconvenience of transport. Despite the grand design of its original intended purpose, the unit functions merely as a table. It does not support any consistent vision of décor but simply provides a suitable horizontal surface that allows for the display of product. This inefficacy resulted in the apathetic placement of a less-than-perfect piece.

5.1.3 Item #1292067

Another piece that was brought in with no specific purpose in mind suffered an even less auspicious fate. A designer procured a large, rusted-over metal industrial cap of some sort during a design team shopping trip in California, failing to tie the item to any specific project. The object, depicted in Figure 57 and known only as "item #1292067," has been described as the cap of a

smokestack or an aged industrial HVAC system cap though no single identification has taken root. The 70 pound item was shipped to the Metropolis warehouse in 2013 and to date the creative logistics team members simply have no idea what it is. Packed in a wooden crate as shown in Figure 58, the item measures 58 in long, 58 in wide and 32 in high. The item still has not been used in a project or even requested for a viewing. It has remained in the warehouse since its arrival over 2 years ago.

FIGURE 58: ITEM 1292067

5.1.4 The Flying Rail

Inefficiencies extend beyond auction-purchased items and even impact items that were designed and constructed with a particular permanent use in mind. The vision for a complete new construction specialty store required a handmade, wrought-iron bannister to wrap around the four-story central staircase. Figure 59 and Figure 60 show top and side views of the installed bannister. Fabrication of the bannister was contracted to a company in Croatia, and the finished bannister would require an approximate five-week transport to the United States by cargo ship and subsequent location

delivery by tractor trailer. After some fabrication delays, the individual pieces of the unit were prepared for transport and loaded into cargo containers for the trip by the shipper. With the store opening in danger of delay, HEFR creative design team found the five week travel schedule untenable and contacted the manager of the creative logistics team to procure a cargo plane large enough to hold the necessary containers. The manager was previously unaware of the plan to procure the bannister and the need to transport it internationally. A suitable airplane was leased at considerable expense, but the bannister was installed during construction and the building opened on time as intended. This example shows that even items that were specifically designed for an intended purpose suffered delays and incurred additional costs as a result.

FIGURE 59: VIEW OF THE FLYING RAIL FROM THE TOP DOWN

FIGURE 60: SIDE VIEW OF THE FLYING RAIL

5.1.5 *The Scissor Lift*

Along with the various items used in support of store displays and décor, even tools and support items were impacted by HEFR's supply chain issues. During its first field visit, we observed a conversation between a senior designer and the manager of the creative logistics team regarding the delivery and use of a motorized scissor lift during the holiday season store-window redesign period. An example of the type of lift in question is shown in Figure 60. Changeovers of store window displays are typically completed after store hours for both safety and convenience reasons, with design teams working through the night and stopping in time to prepare the store for morning opening. Holiday window changeovers are seldom completed in one evening. Because of the limited availability of space in the flagship store, the same delivery trucks transported both the requested display items as well as tool boxes and any other working materials or equipment necessary for the installation. At

approximately 4:45pm, the designer in charge of the redesign requested that a scissor lift normally stored at the warehouse be added to the load for that evening delivery, stating emphatically that the lift was an absolute necessity for the completion of the window changeover. Fulfillment of the request was not possible, though, for a number of reasons. The warehouse personnel who loaded the trucks for evening work had already left for the day so there were no loaders available. While the driver and helper who would deliver the truckload could have added the lift, the addition would have essentially required unpacking and repacking the entire load which would have significantly delayed delivery and the subsequent window changeover. More importantly, though, the store in question does not have a truck-level loading dock so any items delivered are unloaded on the street in front of the store. This activity often commands police attention and results in the collection of parking tickets and lift gate violations even for smaller items. The lift gate on the truck is neither long enough nor has sufficient weight capacity to handle the scissor lift in question, which makes transporting the lift by box truck extremely dangerous, if not impossible. As a result of the difficulties of the requested delivery, the creative logistics manager declined to deliver the lift on the requested evening but made it clear that he would make an effort to do so on the following day when other arrangements could be made. The design team suffered delays to completion of the redesign as a result.



FIGURE 61: A PARTIALLY RAISED SCISSOR LIFT

5.1.6 How Much Wood Would a Logistician Chuck...

Along with all the habits and characteristics that lead them to fill the warehouse with display items, the designers exhibit classic hoarding behaviors with respect to purging those same items once they have fulfilled their intended purpose. As shown by mini-case #7, even easily obtained commodity items are retained because the designers refuse to let them go.

After a long-term stint in a seasonal home-goods display, twelve boxes of ordinary firewood were returned to the warehouse along with a number of other display and sale items. The boxes, each designed to hold approximately 35 cubic feet of material, are overloaded and bulging with the disposable and previously displayed firewood. Despite the minimal expense and high level of availability inherent in the firewood's commodity status, the designers insisted that the wood remain in the warehouse for potential use later. Not a single piece of the kindling has been discarded since its arrival in September of 2014, though the boxes have been stored haphazardly wherever there was available space. The firewood survived an early April purge and remains in the warehouse through the completion of this thesis.

FIGURE 62: 3 BOXES OF FIREWOOD

5.1.7 Seduction of the Gun

As stated previously, the logistics team is not always informed when the designers make purchases. In some instances, the designers purchase items to complete or refresh active displays and those items are procured, transported and installed without the aid of the logistics team. One such request resulted in an especially dangerous circumstance involving working firearms.

FIGURE 63: THE GUN SAFE

The designers purchased several firearms to complete a long-term home goods display in exactly this manner. Since none of the logistics team members was consulted, there was no knowledge of proper handling procedures with regard to the firearms. The logistics teams was entirely surprised when the display was dismantled and suddenly met with the responsibility of properly securing the firearms for transport and storage. The firearms were transported with all firing mechanisms intact but none of them was loaded with ammunition. Since the storage of firearms was unprecedented in the warehouse and the designers wanted to hold onto the guns, the logistics team had to identify and install a securement method as opposed to finding a way to get rid of the firearms. The team purchased the large, locking metal cabinet shown in Figure 631 and housed all the firearms in it close to the warehouse manager's office where they remain.

6 Analysis of Behavioral Results

6.1 The Success That Launched a Thousand Failures

Each of the anecdotes above is a mini-case that serves as critical data for the assessment of the issues affecting the creative logistics supply chain. In mini case #1, the most efficient example and the one involving the wire frame rack, the design and logistics teams worked together to procure and transport the item successfully. Both the intended location and purpose were clearly communicated and the subsequent plan was brought to fruition exactly as it had been laid out. As a result, the rack fulfilled its intended purpose perfectly from both the functional and aesthetic perspectives. While there are no issues to analyze with this case specifically, the success of the process highlights the importance of certain critical behaviors and attributes that, if absent, present problems in other situations. The process used to install the wire frame rack was repeated with the Brooklyn Bridge table discussed in mini case #3 but because the table did not support the design aesthetic, it was not used as intended. In that case, the process failed to identify and install even an imperfect piece in the intended location but the previous success of mini-case #1 was cited as an example to rationalize additional activity. The successful placement of the wire frame rack justified the independent actions of the design team and that team's desire to repeat its previous success resulted in the repetition of an extremely unsafe move. The designers wanted to see how the table fit in, but that could have been accomplished by computer modeling or even an actual dressing and modeling of the table in the warehouse so as to avoid manually transporting the table up and down three flights of expensive hardwood steps next to an unsecured elevator shaft.

The hardwood counter in mini case #2 offers a different set of lessons and clues as to the behaviors impacting the supply chain. Because of the importance of the lifestyle branding with respect to sales, the designers are afforded seemingly limitless leeway with regard to item procurement. This

leeway means that they can purchase items with no project association nor specific purpose in mind, a circumstance that contributes significantly to the status of the warehouse. Despite never having a planned purpose, these items are allowed to crowd the warehouse for years and oftentimes in spite of the requests and protests of the logistics team. The hardwood counter and Item #1292067 detailed in mini-case 4 were both procured under that circumstance, meaning there was no actual usage plan for either item at point of purchase. The purchases of both items were funded despite neither item having a project association. The situation eventually worked out for the counter in question, resulting in a perfect period placement where the counter appears to have been built in with the store. The belief that the success of that unplanned procurement could be repeated is the reason why the unidentified sitting object that is Item #1292067 is still occupying 65 cubic feet of valuable warehouse space with no usage plan in sight.

Because it was custom-designed and fitted for its permanent usage and purpose, the wrought iron bannister of mini-case #5 was almost guaranteed to be successfully installed. The unfortunate shipping situation makes it a worthy case study, however, as it points to a number of inefficiencies and opportunities for improvement in the operations involving the design and logistics teams. The same is true for the circumstances surrounding the scissor-lift delivery, particularly since the window redesign that prompted the request is an innate part of the company ethos and, therefore, would have been completed regardless of any challenges experienced in the process.

Mini-case #6 illuminates the communications failures that occur between the design and logistics teams and the problems that often occur as a result. Besides waiting until mere hours before the scheduled delivery was to occur, the lead designer made a point of asking specifically for the scissor lift. Thinking that she could ease the inconvenience of the last-minute request, she went so far as to provide what she considered an efficient solution to transporting and delivering the heavy-equipment item. Had she consulted with the logistics team about her actual need, then a solution could have resulted that

would have accomplished the goal of safely working in an otherwise inaccessible space. This solution would likely have avoided the delay to design completion since the delivery was not made on the requested day.

The firewood in mini-case #7 offers an example of the depth of the issue and its inherent psychological component. In holding onto this commodity item for months despite its relative ease of procurement, the design team exhibits classic signs of hoarding disorder. According to the American Psychiatric Association in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, there are six individual criteria that must be met in order to warrant a diagnosis of hoarding disorder. Those six criteria are:

- A.) Persistent difficulty discarding or parting with possessions, regardless of their actual value
- B.) This difficulty is due to a perceived need to save the items and to distress associated with discarding them
- C.) The difficulty discarding possessions results in the accumulation of possessions that congest and clutter active living areas and substantially compromises their intended use. If living areas are uncluttered, it is only because of the interventions of third parties (e.g., family members, cleaners, authorities)
- D.) The hoarding causes clinically significant distress or impairment in social, occupational or other important areas of functioning (including maintaining a safe environment for self and others)
- E.) The hoarding is not attributable to another medical condition
- F.) The hoarding is not better explained by the symptoms of another mental disorder

Specify if:

With excessive acquisition: If difficulty discarding possessions is accompanied by excessive acquisition of items that are not needed or for which there is no available space. (APA 2013, p. 247)

The sentiments and actions of the design team exhibit all of the above criteria including the specification of excessive acquisition. The psychiatric diagnosis further illuminates the difficulty in addressing the research question since corporate methodologies are seldom designed to address psychiatric disorders.

The gun cabinet in mini-case #8, or more accurately the guns that necessitated the cabinet, represents a more practical concern that contributes significantly to the issues facing the retailer. It is evident that the design team does not fully appreciate the value of involving the logistics team in some of the procurement and placement events. This failure to communicate leads to lost items, the rampant overcrowding of the warehouse, operational delays and in some case even hazardous circumstances. The logistics team is often left to contend with the repercussions after the designs have served their purpose, shielding the design team from the associated pains of its actions beyond the ever-present warehouse crowding issues.

Each of these instances is worthy of study, but in order to properly identify the lessons to be learned from them and formulate recommendations, it is important to consider what can only be described as a seminal experience in the company history as it relates to the aforementioned ethos.

6.2 A Bit of History: The Development of Design over Everything

The over-arching belief that design is the single most important facet of the company and takes precedence over everything else is rooted in a specific instance from the company's infancy. The corporate label was founded in the 1960s by its current CEO who handled all parts of his business including garment design and the end-to-end supply chain. The startup became instantly successful

with the advent of a handmade line of ostentatious men's ties adorned with the owner's name on the label. With bold designs, wider-than-normal widths and non-traditional colors, the ties stood in stark contrast to the narrow and conservative ties popular at the time. The iconic designer introduced his first full menswear collection the following year, built on the success of his ties. The formation of the full line and the associated label was prompted in part by a falling out with the Manhattan retail store Bloomingdale's as the then 100 year-old retail giant insisted that the designer remove his name from the ties' labels and make them narrower to fit with the trends of the day. The designer refused to make the changes and immediately severed the business relationship with the powerful department store. The CEO expanded his company on the basis of those same colorful, wide and labeled ties, renewing the association only after Bloomingdale's representatives essentially begged for another opportunity to carry his products. That renewal resulted in the establishment of the first retail shop-within-a-shop designer boutique for men, a business model that the company continues to operate successfully to this day. This early success was built on the commitment to individual design and despite the rebuff was reinforced by demand. The Bloomingdale's experience solidified the owner's already strong commitment to trend-setting design and served as the impetus for the corporate ethos in that regard. The company values the creativity of design and the realization of creative vision over everything else. This characteristic belief drives many of the decisions and actions inherent in the interactions of the design and logistics teams to this day.

A more recent example of the CEO's commitment to the absolute realization of creative vision and the *Design-Over-Everything* ethos is provided by the delayed opening of the company's latest Metropolis flagship store. This store, which was the intended home for the Brooklyn Bridge table of mini-case 3 fame, was complete and already stocked with clothing items pending his final approval. The walkthrough occurred three days prior to the planned opening with the intention of giving the design and logistics teams time to address any desired changes prior to the opening event. In order to expedite

the approval process, three trucks loaded with display items circled Manhattan in the event that the CEO requested a specific item. Because of the lack of available parking, the vehicles were required to circle the area while remaining close enough to enable quick stop-and-drop deliveries so that requested items could be installed and approved immediately. As mentioned previously in mini-case #3, the décor included fine hardwood floors and walls throughout, and a small coffee shop/restaurant on the second floor. After the four-hour examination of the location, the CEO concluded that the hardwood look did not fit his vision on the second and third floors and he subsequently requested that those walls and floors be painted white. Additionally, the café on the second floor was too small so he asked that a wall be removed to open up the dining area to accommodate a single large table and accompanying bookshelf. There was a section on the third floor that drew his ire, and the CEO stated that he wanted that section walled off and left unused. Upon hearing the suggestion that the section could be used to store product for sale on the third floor he reiterated that he did not want the section used at all but wanted it walled off with no access. The one issue he had with the store that went unaddressed was the floor height on the third floor. He stated that the ceiling was too low, but there was no provision for purchasing the fourth floor of the building (particularly not since the first, second and third floors were leased and not owned by the retailer) which would have been required in order to accommodate his vision. The first floor actually met his vision exactly and required no changes. Despite the 2.5 million USD per month lease on the space, the opening was delayed until the changes were made including the creation of dead space on the third floor.

6.3 The Model of Success

In order to analyze the shortcomings and issues evident in the cases above, it is useful to consider the behaviors exhibited by successful organizations and HEFR's comparative performance relative to those behaviors. Tolstoy famously asserted that "each unhappy family is unhappy in its own way, but all

happy families...are alike." That assertion also applies in business, meaning that there are a number of attributes that are commonly considered to be inherent to success and therefore shared amongst the highest performing organizations. While there is a plethora of attributes to consider, we will concentrate on a few that are directly applicable to the retail company and the situation involving the teams.

6.3.1 Managerial Leadership Development

Leadership in some form must be evident and purposeful in order to assure the success of an organization. According to the 2011 BCG study "High-Performance Organizations: The Secrets of Their Success" by Bhalla, Caye, Dyer, Dymond, Morieux and Orlander, "effective leaders think strategically, set the pace, allocate resources, build engagement, drive accountability and deliver results" (Bhalla *et al.*, 2011). The framework for such leadership both depends on and contributes to a pipeline of available leaders throughout the organization such that there are always future leaders waiting in the wings to step in and continue the processes and successes of their predecessors. Some of those leaders come from the ranks of middle management, particularly since those managers bridge the gap between senior executives and the workers who actually do the work. Failure to properly support those middle managers can result in decreased engagement at that level and below, since individuals at lower levels will recognize and suffer from that lack of support along with their managers. Additionally, failure to engage middle managers can lead to the ineffective flow of information and subsequent poor decision-making at the senior executive levels. In addition to directing the daily activities of the majority of employees and "translating the strategy and vision endorsed by senior leaders into concrete plans for their teams," middle managers have a responsibility to "select and elevate the key issues from the frontline that need senior management's attention (Bhalla *et al.*, 2011). Without the proper attention from senior leaders, middle managers engagement levels decline and information flow is diminished.

Support for the corporate strategies and vision suffer and executives are forced to make decisions without vital front-line information.

While strong leadership is evident in HEFR's Creative Logistics team, there appears to be a lack of attention to the difficulties they experience. That prolonged inattention has resulted in the current circumstance with a warehouse that is at an estimated 140% of capacity and operations that are rife with safety issues and inefficiencies. The managers in the creative logistics team exhibit a stylized form of disengagement where they handle their responsibilities effectively according to the accepted measures of success while simultaneously accepting as reality the idea that certain challenges will simply continue despite their best efforts. These managers have marginalized their individual and departmental contributions to the creative process so much so that they generally accept that the designers can have and do whatever they want. The signs declaring semi-personal ownership of items in the warehouse, the high number of vitrines in storage (particularly considering that a high percentage of those stored vitrines were purchased after a verbal mandate from the Creative Design Department outlawing further vitrine purchases) and the continuing phenomenon of items purchased with no project association all elucidate the freedom and control afforded the designers to the detriment of the logistics team and its operation.

6.3.2 Labor Leadership Development

Extending the importance of the human asset beyond just management, high-performance organizations exhibit a people strategy that is pervasive and all-inclusive. Beyond simply handling high-potential employees who are identified and placed on the proverbial fast track, model organizations "invest in employee development through training and by rotating people through roles and responsibilities" (Bhalla *et al.*, 2011). The proper management of talent includes the development of those individuals who perform critical labor functions not always associated with leadership. Rather

than rely solely on middle managers for the development of front line employees, high performance organizations identify critical roles and use HR as a partner to implement and support the success of people initiatives.

Because HEFR employs a third-party logistics company for the movement and storage of creative design items, the company has little control over the development and training plans of the wage workers who perform the physical work. These workers are best positioned to offer the feedback that can improve processes yet they are seldom given the opportunity to contribute directly. Their experiences and suggestions are sometimes shared with middle managers but as previously discussed those suggestions often fail to impact the decisions of senior leaders. Since the employees in question are actually employed by the third-party logistics firm that operates the warehouse, they are often promoted or rotated to other assignments with little or no notice given to HEFR. Opportunities to benefit from significant knowledge and experience about the operation are therefore lost with those employees to the detriment of the retail company.

With respect to leadership development on both the managerial and labor sides of the coin, employee involvement is a central theme and a necessity in high-performing organizations.

6.3.3 Employee Involvement Programs – Beyond the Catchall Phrase

According to Stephen P. Robbins in his sixth edition of *Essentials of Organizational Behavior*, the term “employee involvement has become a convenient catchall term to cover a variety of techniques” designed to engage and optimize employees at the individual and aggregate levels to the benefit of the company (2000, p. 64). Robbins goes on to state that “the underlying logic [of employee involvement programs] in that involving workers in decisions that will affect them and increasing their autonomy and control over their work lives will make employees more motivated, more committed to the organization, more productive, and more satisfied with their jobs” (Robbins, 2000). While the statement above

suggests that programs designed to allow employees to impact decision-making could serve as a panacea for morale and productivity issues, the reality is that participation is but a small part of involvement programs and must be accompanied by more purposeful initiatives. High performing organizations identify, design and implement programs that address their specific issues. In the case of this retailer, the employee involvement program from which it can derive the most benefit is a tailored version of the quality circle.

Quality circles have enjoyed widespread popularity and usage for nearly 70 years and in this case the continued employment is a tribute to its success. While the normal quality circles include only eight to ten employees, a slightly different model is more appropriate for the retailer and its juxtaposed creative and logistics teams. As noted above, the creative logistics function is comprised of designers, logistics managers and logistics operators who handle the actual movement of goods. Each of distinct groups must be represented in the retailer's version of the quality circle in order to maximize the benefit and realize the necessary developmental opportunities. Within these quality circles, the members will discuss upcoming projects and design plans, developing the procurement and placement plans in accord with the designs in order to properly integrate the separate functions in order to alleviate the pain points and issues facing the retailer. It is worth noting that the retailer has recently initiated a tailored quality circle and has enjoyed some success with the implementation. These successes have been limited by the absence of an even more pervasive necessity, and that involves the committed support of paradigmatic culture change from the top down.

6.3.4 Successfully Managing Paradigmatic Change

The problems presented by each of the mini-cases listed above can be addressed in a pragmatic way. After the initial failure to provide the proper aesthetic effect on the third floor of the new store, the Brooklyn Bridge table could have been immediately relegated to some other task or disposed of

since it failed to fulfill its intended role. The hardwood counter of mini-case #2 could have been disposed of, though it did eventually find an appropriate home. Item #1292067 could have been disposed of after the first year of storage, or perhaps its purchase could have been prevented since there was no purpose for it upon procurement. The designers and the logistics managers could have discussed the purchase and transport of the flying rail well in advance so that more timely shipping arrangements could have been to avoid the expense of air travel. The design manager who requested the scissor lift could have informed the logistics teams of her design plans in advance so that a plan could have been made to allow her the height access necessary to complete her design vision. The firewood, having served its purpose, could be disposed of though the obvious attachment may require separation counseling or some other treatment for hoarding disorder. Repeating the theme of communication, the designers could have discussed the need for firearms in a display so that proper precautions could have been taken and preparations made in advance to avoid unsafe conditions. None of these solutions could be implemented successfully without a change in the corporate culture regarding the limiting concept of 'how we do business.'

According to Jonathan L.S. Byrnes in his book, Islands of Profit In A Sea Of Red Ink, successful, high performing businesses are adept at implementing and managing paradigmatic change (Byrnes, 2010). The history of this fashion retailer shows that giving free reign to the designers is the corporate culture and effectively the biggest factor in its corporate methodology. The adjustments offered above as solutions to several issues would be effective and result in respectable improvements, but such issues would repeatedly arise since the culture would remain.

Byrnes states that in order to change the paradigm permanently and move to a more productive model, high performing companies make changes before they find themselves in crisis (Byrnes, 2010). For this retailer a crisis could be devastating since it could result not only in the loss of millions of dollars in physical assets but it could very well result in the loss of lives.

Byrnes lists three specific steps that must be taken in order to establish the need for change in advance of a crisis. In order to effect a change in culture, a change agent must first “make a comprehensive case for upcoming disaster if paradigmatic change does not take place” (Byrnes, 2010). Beyond simply explaining how the current system is ineffective or offering an alternative system that would be more efficient, the company must accept that change is an absolute necessity and must be undertaken before crisis makes it too late. In the case of the retailer, the state of the warehouse and certain details of the operation combine to reveal that the logistics team flirts with disaster on a daily basis. Secondly, the company must “develop a comprehensive, concrete specification of the new paradigm” (Byrnes, 2010). While a new corporate vision may be inspiring and a changed culture alluring, neither can be realized unless employees have an understanding of the day-to-day activities required to bring them to fruition. This is the most difficult step for the retailer in terms of both the development of the daily guidelines as well as the enforcement of them. Lastly, the change agent must “be patient and wait until the time is right (Byrnes, 2010). Paradigmatic change is impossible under certain conditions, so circumstances must be conducive to change. In the case of the retailer, the state of the warehouse, the mounting expenses of creative logistics operations and the attention of senior leaders combine to make this the perfect time to initiate change.

So how will the retailer manage to develop and enforce the day-to-day guidelines that will result in paradigmatic change? The answer lies in a slight adjustment of another of Byrnes’ tenets involving compensation systems.

6.3.5 Do Your Job and Demand Compensation – But In That Order

According to Professor Byrnes, “if you truly want paradigmatic change, you have to change the compensation systems” (Byrnes, 2010). In deference to the issues facing the retailer and the perspective of personal ownership that the designers take toward the items they purchase for display,

compensation in this case is defined as the funds allotted the designers to purchase and procure items. Despite the fact that there is a finance department specifically for the creative logistics function, designers have received funding for purchases with little or no requirements. As explained previously, designers have been allowed to purchase items for which they had neither a project nor a plan, and some of those items remain in storage at present. Current corporate guidelines state that all purchases must be tied to an active project and charged to the appropriate budget. This guideline has gone unenforced, so designers have received funding without justification and then failed to make use of the items they secured to funding to purchase. The designers have effectively been compensated with usable funds but then they failed to do the jobs they were 'paid' to do. The Cary Grant quote in the header is in reference to this unconventional circumstance. The retailer needs to demand that the designers properly justify purchases prior to receiving funding, but as a part of establishing the day-to-day operating guidelines it should go a step further. Prior to receiving funding for any item or project, the designers should be required to meet with the logistics team to discuss the vision, the schedule and the design aspects in order to properly coordinate efforts and cross-reference specific needs. The logistics team will exercise no actual control of the budgeted funds itself, but will sign off on having participated in the aforementioned meeting as a means of releasing approved funds to the design team for purchases.

By withholding this version of compensation from the designers until the completion of the necessary meeting, the retailer would guarantee that communication occurs in advance of any project procurement. In addition to the team meetings (previously identified as quality circles), other guidelines could be attached to the receipt of budgeted funds.

Despite the attention given to some high level, strategic goals, most supply-chain innovations start out as tactical initiatives. This supply chain is an example of that and as such, significant attention must be given to the task of correcting the issues at the warehouse.

7 Discussion

We will address HEFR's problems in two parts: one is to address the behavioral issues that created and perpetuate the problems; to other is to propose solutions to the problematic situation in the warehouse. Each of these two parts of the solution can be further broken down into parts as discussed below. In our discussion, we advance a number of recommendations for *HEFR* to act upon.

7.1 Fixing the Current Overcapacity Situation

7.1.1 *Purge Process.*

We urge *HEFR* to institute a purge process. A purge process is essential to the future safety and operations of the warehouse.

Safety. After spending only limited time in the warehouse, we immediately felt compelled to recommend a purge process. The reoccurring theme in all of the interviews was that the warehouse is severely overcapacity. The thesis has demonstrated the potential safety concerns that the overcapacity is exposing warehouse workers to throughout aforementioned figures. For example, Figure 64 shows a real speed boat on the top of a shelving unit not tied down to anything.

FIGURE 64: BOAT ON TOP SHELVING

The warehouse does include warning signs regarding safety throughout the facility as shown in Figure 65.

FIGURE 65: SAFETY SIGNS

However, zooming out of the same sign as shown in Figure 66, the objects surrounding the signs offer a different perspective on the safety of the warehouse. As shown, it would be nearly impossible to navigate this area of the warehouse. Additionally, furniture is piled on top of each other causing safety risks.

FIGURE 66: OBJECTS AROUND SAFETY SIGNS

Recall the ambiguous object in front of the workers' break room shown in Figure 67. The figure shows quintessential safety concerns in the warehouse in one photograph. The item material is unknown, which could make it dangerous to touch, smell, or lift – if the material could break while lifting and fall on a walker. Furthermore, the item's location is in front of a fire extinguisher in the middle of a heavily traversed area, which is a major fire safety concern.

FIGURE 67: UNKNOWN OBJECT OUTSIDE OF EMPLOYEE LOUNGE

The purge process will help improve the safety of the warehouse for the warehouse workers, the Creative Team, and every person that has to enter the warehouse.

Operations. The purge process is the most important and time sensitive recommendation. Other process improvement recommendations would not be possible with the current state of the warehouse. The purge process will make certain labor procedures more efficient, reducing costs for the company and shortening lead times to the stores with Creative Team projects.

How Much To Purge. Assuming a warehouse should operate at around 80% capacity, the warehouse would need to purge 43% of the inventory; please refer to Calculation 1.

EQUATION 1: CAPACITY REDUCTION CALCULATION

$$(140\% - 80\%) / 140\% = 43\%$$

Referencing Figure 68, if the warehouse were to purge 43% of its items based solely on age, assuming a uniform item size, then that would mean eliminating all items in the categories of '3+ years' and '2 to 3 Years', and 52% of items between '1-2 Years'.

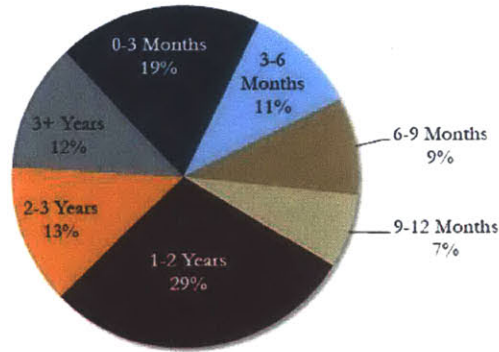


FIGURE 68: INVENTORY AGING BY DEPARTMENT AS OF NOVEMBER FY15 LIC

What to Purge. Metrics need to be chosen to identify what to purge. The diversity of inventory in the warehouse make this decision complex relative to similar decisions in warehouses with standard inventory. The team recommends that the retailer categorize the items in the warehouse such that the categorization dictates timelines for retention and disposal. One such categorization method analogizes the stored items to common and easily understood terms which assists in defining the handling for those items.

There are three main categorizations and each items will be placed into a single category. The first category is indefinite storage and is made up of two subcategories. The retailer should retain items that have historical significance or some other high-value interest. These items can be considered "museum items" since they have high value and should be retained for possible viewing later. The other subcategory is for seasonal items that may only be used for a specific time during the year but will

definitely be used again on an identifiable schedule. These items can be categorized as “Christmas trees.”

The second category is for items that will be stored temporarily but with a deadline defined by circumstance. There are two subcategories for these items also, dubbed the “hotel” and the “pet shelter.” Hotel items have a specific purpose but need temporary housing until scheduled installation, akin to an overnight stay in a hotel. Pet shelter items have high potential but have not been adopted yet. A timeline would be identified for store placement and if that deadline is reached, the item would be discarded.

The third category is for items that should not be stored in the warehouse at all. Items that fall into this category include inexpensive commodity items that are easily procured such as the firewood from mini-case #7, indistinct items that are already stored in abundance such as trunks and dangerous or regulated items such as the firearms from mini-case #8.

7.2 Improving Procedures Moving Forward

7.2.1 *Holding Costs*

Why Charge Holding Costs. Discovering through the extreme case analysis that the Creative Team could purchase an Olympic-sized swimming pool for five dollars and that the warehouse team was expected to store the pool led us to investigate holding costs as a deterrent to the over purchasing of the Creative Team.

How to Charge Holding Costs. We recommend charging an internal holding cost to each project owner for holding inventory in the warehouse. The team recommends determining the holding cost based on the factors of item volume, weight, value, time in warehouse, and complexity. The cost must be set high enough to deter the purchasing of the Creative Team. Additionally, the holding cost should account for the item’s size because it determines how much space the item uses in the warehouse. The

holding cost should account for the item's weight complexity because these factors determine difficulty in moving the object, which directly affects the labor spend of the warehouse. Finally, the holding cost should be a function of the object's time in the warehouse, which is how long the item has utilized said volume.

7.2.2 Organization of Warehouse based on Inventory Type

How to Organize the Warehouse. We recommend organizing inventory based on asset type. Currently the inventory is organized in three ways: strictly by inventory type, strictly by owner, and by a combination of inventory type and owner. Consolidating the inventory purely by asset type will allow the warehouse management to design standard operating procedures (SOP) for each inventory type as shown in the Rug MOST analysis in Section 4.4.4. Designing efficient processes based on inventory type will reduce time that workers need to store and 'search and pick' items for the Creative Team. Reducing the time needed by the workers, HEFR can reduce labor spend and improve lead times to the Creative Team's projects.

Rug Process Optimization Extrapolated. As shown in section 4.4.4, the subtype rugs can be optimized from its current state. Currently, the rugs are rolled and stored on the shelving units. By displaying the rugs and allowing the Creative Team and workers to page through them, the warehouse could save 7500 USD of labor. The current process is estimated to take 6.17 minutes whereas the proposed method is estimated to take 1.75 minutes for 5 rugs. The estimation is on the conservative side because it does not account for the need to move objects to unravel a rug. It also assumes that the rugs would be fairly simple to remove from the shelves, but photographs from the warehouse suggest otherwise. Extrapolating process improvements to all items throughout the warehouse could represent major labor costs and time savings. The labor saved could be used for other warehouse activities and improving customer service levels to the Creative Team through reduction in lead times of the items to

creative projects. We recommend further subdivision of the current asset type division shown in Table

8.

TABLE 8: BREAKDOWN OF INVENTORY BY ASSET TYPE AS OF APRIL 2015

Asset Type	Asset Count	Asset Type	Asset Count
Artwork	2216	Hardware	1339
Artwork - Drawings-Posters-Prints	1913	Home - Kitchen - Serving	1177
Artwork - Frames Only	467	Instruments - Electronics	136
Artwork - Paintings	368	Ladders - Staircases	92
Artwork - Photographs	2435	Lampshades	491
Artwork - Sculptures - Statues	591	Lighting	2431
Automobile	51	Mannequin - Bustform	175
Banners - Flags	121	Mantels	109
Baskets	759	Merch Tools	726
Beds - Mattresses	94	Mirrors	355
Bookcases	14	Outdoor - Garden	515
Books	87	Pillows - Cushions	1396
Boxes	478	Pots - Vases - Planters	1639
Cabinets-Chests	184	Racks - Rounders - Shelves	157
Clocks	61	Screens	185
Clothing	552	Seating	1206
Decorative Props	1208	Signage	488
Desks	23	Sports Equipment	4979
Doors	144	Tables	653
Easels	111	Taxidermy	177
Fabric - Wallcovering	862	Toys	273
Fans	27	Trophies	524
Floorcovering	914	Trunks - Cases	568
		Vitrine	154

The current asset type divisions are too broad to optimize the warehouse. The warehouse team should divide the inventory into items with similar features, such as all rugs together. For a different example of what other assets could be grouped together, please refer to Figure 69 which shows the current bicycle storage situation.

FIGURE 69: BICYCLES STORED IN DISARRAY

7.3 Causal Loop Analysis of Current Warehouse Situation

Stocks and Flows. A causal loop analysis of the current state of the warehouse is shown in Figure 70. The central structure consist of two stocks, which are Volume Occupied by Inventory and Volume Unoccupied by Inventory. Since the absolute capacity of the warehouse is fixed, as the Volume Occupied by Inventory increases, the Volume Unoccupied by Inventory decreases. The Creative Team Procurement Rate flows into the stock of Volume Occupied by Inventory because of the direct relationship between them. The purge rate flows into the stock of Volume Unoccupied by Inventory. As the warehouse purges items, the intuition is that the warehouse will have more free space.

Loops. The Budget Loop explains the current mindset of the HEFR regarding the relationship between revenues and creative props. There is an underlying thought within the company is that the creative props increase revenues in the stores. As the revenue increases from the stores, so does the budget for these props.

The New Projects Loop shows the relationships between the more revenue and profit gained from the revenue from props, the more variety of projects are used in the stores. For example, a newer store of *HEFR* embodies a more western theme, which drastically varies from the company's traditional flagship stores. The new type of store opening increases the budget for props because the current warehouse will not typically have the prop type inventory needed for the new type of store.

The New Store Loops demonstrates how the perceived revenues from props increases the revenues and profits of the company. Some of the profit is then reinvested in the company into new flagship stores thus creating a perceived need for more props.

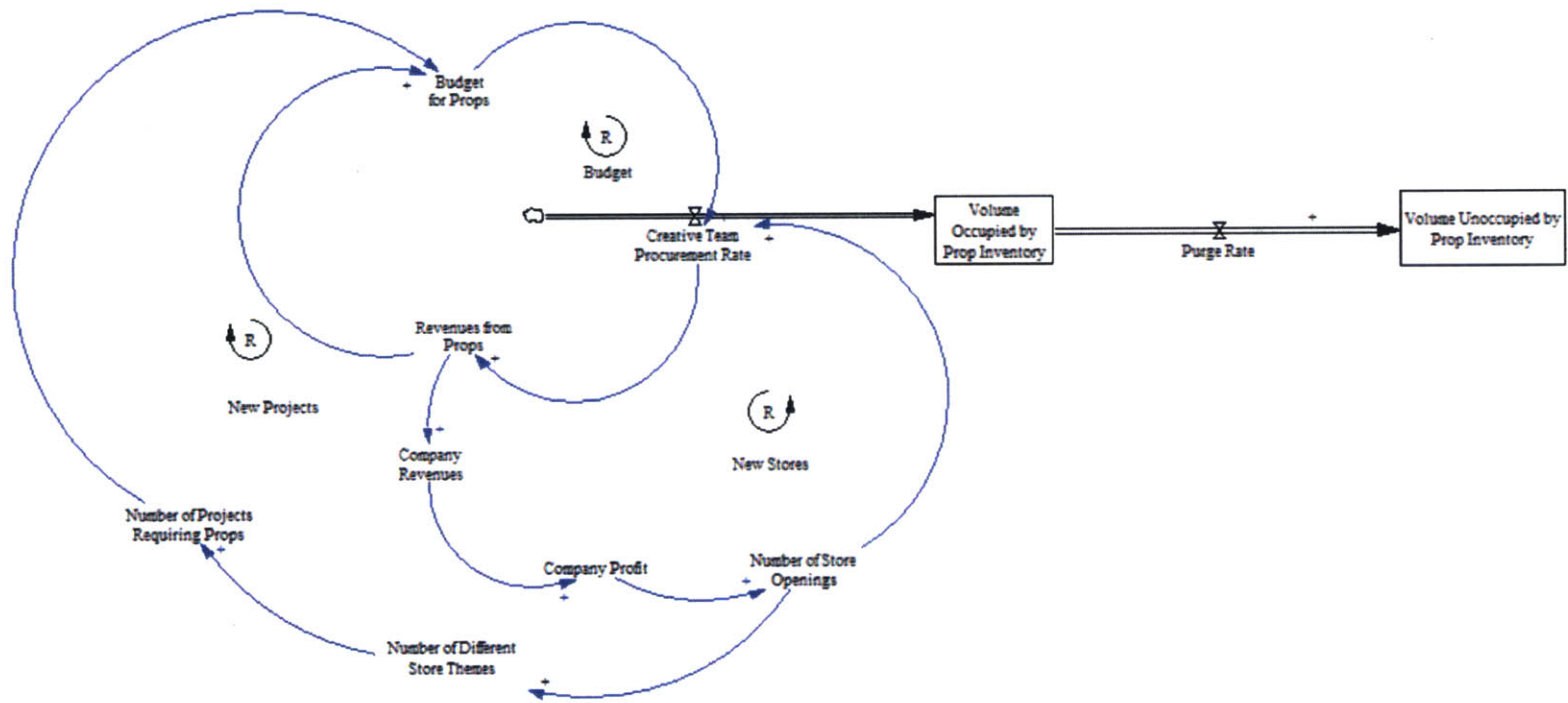


FIGURE 70: CAUSAL LOOP ANALYSIS OF CURRENT SITUATION

7.4 Causal Loop Analysis of Recommendations

Introduction of Recommendations. A causal loop analysis of the proposed state of the warehouse is shown in Figure 71. The recommendations introduce two new loops into the Causal Loop Analysis of the Current Situation. The first loop is the Holding Costs Loop, which show the balancing effect that introducing holding costs can have on the budget for props thus reducing the flow, Creative Team Procurement Rate. The loop explains that as volume of props occupying warehouse space increases so do the holding costs. Increasing the holding costs decreases the budget which slows the Creative Team Procurement rate. The Purge Process Loop shows how safety concerns can lead to the need for the institution of purge processes. The implementation of purge processes will increase the Purge Rate, which will increase the Volume Unoccupied by Prop Inventory.

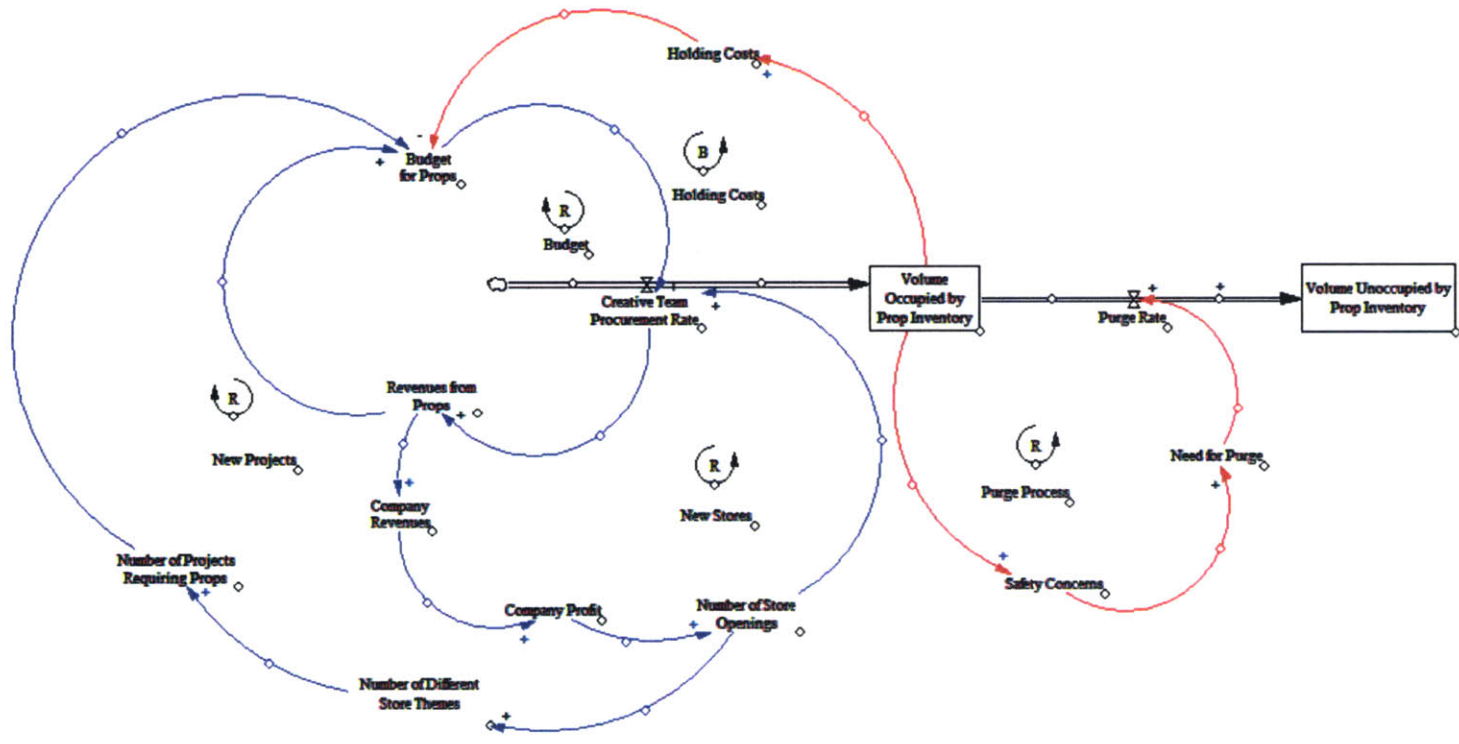


FIGURE 71: CAUSAL LOOP ANALYSIS OF PROPOSED SITUATION

8 Conclusion

The situation of the warehouse and other logistics operations at HEFR is a dire one. The warehouse poses safety threats to all who enter, provides limited space for future purchases, and lacks optimal procedures for the 'search and pick' process. The implementation of a purge process is an absolutely necessity in order to bring the warehouse inventory down below the actual capacity. The analogous categorization method proposed in this thesis will simplify the identification of purge-worthy items and help remove irrational attachments that have justified retention. After arriving at a manageable inventory level, repeated overcrowding will be avoided with the application of financial disincentives aimed at dissuading the behaviors that lead to capacity problems. Allowing only designers who are engaged in an active and budgeted project to attend shopping events and requiring that every purchase be made for a specific project will combine to eliminate unassigned purchases and help identify items that no longer serve a purpose. Requiring that designers discuss their design plans with the logistics team prior to the release of funds for display item purchases ensures that the operational impacts of design plans are considered in advance, thus reducing the need for reactive problem solving activities. The application of holding costs to project owners will discourage the retention of items with no usage plan which will further decrease the inventory. By implementing these recommendations, the safety concerns can be mitigated, the 'search and pick' processes can be improved, and the warehouse can save the company labor spend.

More importantly, the behaviors exhibited by the respective teams must change in order to initiate and support improvement and continued success with respect to the creative logistics procedures. While the efforts of the design teams are on display and directly contribute to sales, those efforts would not be possible if not for the support of the logistics team. The financial disincentives above carry behavioral implications designed to encourage communication and corroboration between

the teams, and specifically limit the designers' ability to make decisions that have detrimental effects on the operations. Faced with the requirement of corroboration prior to the release of funds, designers must take the opportunity to work alongside the logistics team members with better understanding of goals and planning as intended results. Once the logistics team members recognize their newfound importance to the design process, they will be more apt to take advantage of the opportunities to assert themselves and their ideas in the design process as opposed to attempting to work around the designers' actions.

It is worthy of note that the retailer has already begun to implement some of the aforementioned recommendations. The company instituted a Breakfast and Learn discussion series where designers visited the warehouse to discuss their needs and perceptions with regard to the warehouse and the logistics activities in general. Those discussions will be continued in the reverse when members of the logistics team visit the designers to share their thoughts about the design process and how the logistics efforts fit into them. The Creative Finance Team has already begun to enforce some previously existing guidelines requiring specific details and vetting of items to be purchased prior to budget approval. Additionally, the finance team has taken steps to ensure that the entire creative logistics inventory is available to all designers, effectively limiting the ownership issues that also serve to complicate inventory management.

Of particular interest is recent change with regard to assigning items to the warehouse. The retailer has recently closed a number of stores around the country, and the accepted practice was to have all display items from a closed store shipped to the warehouse for storage. Instead of crowding the warehouse with several stores worth of items, the logistics team requested that the designers view the items in advance of closing to determine which ones could be purged on site and therefore never enter the warehouse. The amount of inventory shipped back to the warehouse was drastically reduced as a result.

The logistics of creativity need to be considered and addressed in parallel with the creative design efforts themselves in order for the company to continue to enjoy the lucrative profits of the sale of the HEFR lifestyle. By addressing the immediate concern of the warehouse inventory and establishing initiatives to maintain acceptable inventory levels going forward, the retailer is taking steps to ensure that it can continue to place a high value on creativity while leveraging the logistics function to greater advantage.

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