Enhancing Cross-Functional Communication Efficiency and Effectiveness Between Supply Chain Management and Marketing

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A thesis submitted in partial fulfillment of the requirements for a baccalaureate degree in Management with honors in Supply Chain Management

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ABSTRACT

The purpose of this paper is to define and analyze cross-functional communication practices between supply chain and marketing departments within a firm, as well as between supply chain departments and the firm’s customers. A nine-question survey was sent to a sample of supply chain managers, most of whom were in external-facing roles (dealing with suppliers or customers). The overall goal of the survey was to assess the supply chain performance effects in relation to communication effectiveness and efficiency. The survey design aimed at (1) gathering basic insight into current cross-functional communication practices between supply chain and marketing units within a business; (2) assessing how various forms of communication are used in managing the relationship between supply chain departments, and customers; (3) determining how communication is established, in practice, when dealing with supply chain performance issues; and (4) measuring the perceived effectiveness of the current communication strategies in the context of fulfilling customer needs. All the comparisons and conclusions were based on the data that was collected from the survey. All the details and results of this analysis are presented on this thesis paper. There are many other factors not addressed directly in this study, but recognized as influencing the communication efficiency and effectiveness between different functions. Further considerations and extension of this research are suggested.
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I also would like to thank Mr. Steve Tracy, Executive Director of the Center for Supply Chain Research (CSCR) and Ms. Sharon Cox, Communications and event manager. Mr. Tracy was always friendly and willing to help students. Ms. Cox was always available to reply to my questions and concerns, and offered me her guidance in research and writing. With their assistance, I was able to send out my survey to over 2,230 companies.

I would also like to thank Dr. Robert A. Novack and Dr. Ralph Sees for taking time to review my survey content. Both provided critical insights that helped shape the path I followed during that portion of my thesis.

I would also like to thank SHC Coordinator of Academic Advising, Dr. Richard Stoller, and my honors advisor Srikanth Paruchuri for allowing me to change my field of research from Management to Supply Chain Management.
Chapter 1

Introduction and Literature Review

Reinventing Supply Chains and the Role of Communication

The goal of this thesis is to offer initial insights into communication effectiveness and efficiency in the cross-functional context of 21st century supply chains. Consequently, this study assumes a customer-centric approach, by first defining attributes that are important to today’s customers, connecting these attributes to supply chain performance, describing relevant cross-functional relationships, and elevating communication as an essential element for success.

Customers have a very wide selection of products that can satisfy their needs. Presented with so many choices, individuals and organizations compare alternatives and make purchasing decisions based on value perceptions (Vokurka & Lummus, 1998). In this context, value can be defined as a function of price, quality, brand equity, ease of buying, added features, etc. All of these dimensions of product value are directly affected by supply chain performance (Estampe, 2014). A supply chain is defined as the structure and infrastructure used to manage “the flow and transformation of goods from the raw material stage, through to the end user, and the associated information flows” (Bozarth and Handfield, 2014). Thus, to achieve a successful level of supply chain performance, managers must focus on value to customer, before, during and after production takes place (Estampe, 2014). Therefore in the current literature many agree that the objective of the supply chain is to link all stages in the process of delivering value to customers (Kwon, Paul IM, & Chang Lee, 2007). This objective requires managing a host of end-to-end processes across different inter- and intra-organizational functions to deliver the right
products, in the right place, time, quantity, and quality. This is not as simple as it sounds. For example, when Xbox was introduced in 2001, Microsoft (the company behind the product) seriously underestimated the demand for Xbox consoles and became unable to rally resources to satisfy all customers. Consequently, a big revenue loss happened in the European and North American markets, generating a significant loss of profit (Marshall, 2013).

The problem of how to maximize supply chain capabilities, achieve higher flexibility, and improve cost efficiencies has existed for a long time (Vokurka & Lummus, 1998), but the way this is accomplished in practice is rapidly evolving. That evolution is fueled in part by multiple emerging technologies that have disrupted the world we live in many ways. One very tangible way is the rapid increase in the complexity and sophistication that supply chains need to survive in today’s global economy. Take for example the wave of online ordering that has reshaped the footprint of many industries since the mid 90’s. The world has since become truly a global marketplace, limited only by internet bandwidth and the reach of logistics infrastructure. Fast forward more than twenty years later, and not all stories of companies that first jumped into the digital age have a “happy ending.” For example, consider the case of Webvan (Ramalingegowda, 2014), founded in 1996 with the promise to deliver groceries (ordered online) within 30 minutes. The Webvan story ended in failure in 2001, in part because their systems were not mature enough (Ramalingegowda, 2014). A similar issue happened on Christmas Eve 2015, when FedEx unexpectedly received an overwhelming amount of online orders, and many anxious customers did not receive their holiday purchases in a timely manner (Koenig, 2015). In these examples, the need to reinvent supply chain strategies based on the rapid changes in both capabilities and demands are for many firms a matter of life and death.
Electronic commerce is, however, merely the proverbial “tip” of the technological revolution “iceberg.” There are many other instances of advances with the potential to redefine business as we know it. For instance, the novel concept of using drones. Companies are thinking about allowing drones to carry packages directly to customer's houses. The whole process would then be controlled and monitored remotely by computers. The main purpose seems to be the acceleration of the delivery processes while reducing human error. This is important because people are expecting accurate product deliveries in considerably less time, even within minutes, not hours or days. In addition, there is data mining technology by which companies gather customer choice and behavior data to make it available to managers at various levels. Therefore, companies are now more capable of translating information into implementable strategies and tactics derived from the data. Finally, another suitable example is virtual and/or augmented reality, which is also a potential way to allow companies and their customers to interact more effectively. Under this new paradigm, information exchanges between parties can happen, literally, anywhere. The ability to surpass physical boundaries (i.e., carrying a virtual store in one’s hand via smartphone) is redefining the plane of interaction between businesses and the markets for which they compete. These life-altering worldwide shifts have prompted more questions than answers in understanding the new business models than can address the needs of customers. This, turns the spotlight on the supply chain associated with the corresponding product, as well as on the cross-functional linkages that are essential to its success (Ellinger, 2000). Therefore, any discussion about how firms may remain competitive in this new technology-driven environment must include not only a rethinking of organizational structures and current business models, but also the rethinking of relevant supply chain designs.
The task of redesigning supply chains is by definition cross-functional, since it involves, as it was stated previously, the integrated efforts of entities within and between organizations along the chain (Cespedes, 1996). The cross-functional effects of these technology-driven strategic shifts raised many questions for me, and thus became the general focus of this thesis. In current supply chain theory, there are many articles that address cross-functional processes. Twelve out of 28 articles analyzed for this project mentioned a topic directly related to communication. Throughout the analysis of the relevant literature, one can see that communication is an essential element of cross-functional effectiveness (Arndt, Karande, & Landry, 2011). Prominent work in the literature has demonstrated a clear link between poor cross-functional and inter-organizational communication as primary causes of dramatic increases in variability across the supply chain (Lee, Padmanabhan, and Whang, 1997), much like what is observed in Figure 1. The distortions in demand and the resulting accumulations of inventory increase as a result of a reduction in the amount and quality of information shared. This is better known as the field of supply chain management as the “bullwhip effect,” which is listed as Figure 1 below.
Figure 1: Information Sharing Effects on Demand Signal Distortions: The Bullwhip Effect (Lee, Padmanabhan & Whang, 1997).

Gnanendran and Lacocca (2015) proposed a mathematical way to reduce the errors in matching demand downstream expectations with upstream supply capabilities. They pointed out that entire market risk becomes larger and larger due to the resulting mismatch costs (Gnanendran & Lacocca, 2015). This same paper also addresses the problematic relationship between supply chain and marketing departments, thus the relevance of this work as a motivator for this thesis. In a traditional way, poor supply chain communication has generated a lot of problems (Archetti & Speranza, 2015). The simple answer seems to be to improve communication to drive up performance, as well as value to customers.

Communication is generally defined as the exchange of information among two or more participants. Regardless of format, successful communication requires both efficiency and effectiveness (Tione, Katengeza, & Mangisoni, 2013). Communication efficiency is related to two parts, senders and receivers. Senders give out messages to the receivers, while receivers are getting these messages. Communication efficiency is dependent on how much information needs to be transmitted and received over a period. There is research that demonstrates that frequency
and volume of data have a significant impact on communication complexity (Katz & Te'eni, 2014). Therefore, communication efficiency depends on how quickly people can pass on key points. In a business context, research suggests that the most efficient communication occurs when information flows quickly both vertically and horizontally across the firm (Abreu & Alcântara, 2015). Efficiency of communication across the supply chain therefore depends on how organizational boundaries and lines of interaction are organized. In this research, it is assumed that this is built into how functional and decision-making responsibilities are allocated within firms. On the other hand, communication effectiveness represents the degree to which people understand the conversation and the content. The more people understand, the more effective the conversation is. A study presented in Heikkila (2002) illustrates that effective information flows have positive correlation to the customer satisfaction. Therefore, based on these results, if the communication between customers and companies fails, the results will be “wasted resources, internal conflict and dissatisfied consumers” (Autry & Moon, 2016).

This paper outlines a descriptive analysis of cross-functional communication practices between supply chain and marketing departments within a firm, as well as between supply chain departments and the firm’s customers. Chapter Two introduces the methodology of the survey and the questions formulated. In Chapter Three, survey results and data are presented. Chapter Four delves into findings of the data results. Chapter Five draws some interesting conclusions and subjects for future discussion and future research.
Chapter 2

Methodology

This research focused primarily on the intra-organizational relationship between marketing and logistics/demand fulfillment functions. This study also extended into a basic assessment of external communication with customers, allowing for comparison and contrast of external and internal communication practices. In addition, a portion of the analysis took a closer look at how communication takes place to resolve failures to fulfill the customer's expectations.

The methodology for this exploratory research study was defined based on four desired outcomes:

1. gathering basic insight into current cross-functional communication practices between supply chain and marketing units within a business;
2. assessing how various forms of communication are used in managing the relationship between supply chain departments, and customers;
3. determining how communication is established, in practice, when dealing with supply chain performance issues; and
4. measuring the perceived effectiveness of the current communication strategies in the context of fulfilling customer needs.

To accomplish the objectives of this research, a descriptive online survey (see Appendix A) with nine questions was sent out (https://www.surveymonkey.com/r/Q7DNTST). Once the survey was created, the very first version was reviewed by three professors from the Smeal College of Business. The faculty reviewers offered useful feedback not only on the content, but also helped identify the right audiences. Upon approval from the IRB research center, the survey was distributed via email to potential respondents. A total of 2,230 survey requests were sent to companies across a broad range of industry
sectors. In the very beginning, confidentiality and contact information was listed (see Figure 2), followed by 9 questions.

Figure 2: Confidentiality and Contact Information

Questions 1 to 5 addressed communication practices based on the research outcomes previously described, while questions 6 to 9 were used to collect demographic information from the respondents. All questions required a response for the survey to be submitted.

**Question 1:**

Gathering information about the challenges decision makers faced each day was very important to fully assess the potential impact of communication. This question was composed to obtain a sense of the type and frequency of demand fulfillment issues. Therefore, the survey focused on the four most common types of issue: late order, arrival of damaged goods, invoicing errors, and shortage (quantity received < quantity ordered).

**Question 2:**

This question was added to measure the frequency of internal communication through different methods used to address the delivery problems listed in Q1. The question specifically
referred to communications with the Sales/Marketing department only. Six different communication approaches could be selected as listed by Collier et al (2012):

- Face-to-face
- Telephone
- Text and print-based
- Email
- Social media interactions
- Instant messaging

**Question 3:**

This question assessed the perceived effectiveness of the communication modes listed on Q2. The specific context was communication with external customers to resolve demand fulfillment problems.

**Question 4:**

Similar to Q3, this question assessed the perceived effectiveness of the communication modes listed on Q2. However, the specific context was the internal communication with the marketing/sales departments to resolve the demand fulfillment issues listed in Q1.

**Question 5:**

This question measured the perceived effectiveness of the firm’s overall internal and external communication processes used to resolve the demand fulfillment issues mentioned in Q1.

**Questions 6-9:**

Questions 6 through 9 were set as background questions, such as the manager’s current status, organization type, company size, and business type (i.e., B2C, B2C, etc.).
Chapter 3

Data Analysis

Since this was a basic descriptive analysis, only basic features of what the data showed were considered of relevance. No structures were in place to analyze variable correlations or possible cause-effect relationships. The bulk of the analysis was designed to summarize the sample of responses and the measured values. Simple graphics were composed to facilitate the visual identification of the distribution for each of the measured values (including averages and variabilities among responses).

Based on the data collected, 129 responses were completed. The response rate was roughly 0.06% (129/2,230). Assistance was provided by the Center for Supply Chain Research to reach out to potential respondents and collect response data.
Table 1: Frequency of Demand Fulfillment Errors

<table>
<thead>
<tr>
<th></th>
<th>Seldom</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without full Quantity</td>
<td>67.4%</td>
<td>32.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Damaged product</td>
<td>85.3%</td>
<td>14.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Invoicing errors</td>
<td>72.1%</td>
<td>27.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Over maximum lead time</td>
<td>59.7%</td>
<td>39.5%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

Figure 3: Question 1 Summary - Frequency of Demand Fulfillment Errors

Regarding the first question (Table 1 and Figure 3), 68 responses out of 100 stated they seldom had problems with delivery without full quantity expected by the customers. Turning to the second column, “damaged products,” there were around 86% responders who suggested that they were doing a great job while 14% of them were still struggling to find a better way to improve their jobs. As for the invoice errors, 72.1% of people were doing a decent job in invoice checking. However, around 27% of
participants were not positive about their supply chain operation. In the last question, 39.5% of the participants had lead time problems, and even 0.8% of 129 respondents felt this issue happening every day. At the same time, roughly 60% of managers suggested that they were dealing with the issue very efficiently.

![Figure 4: Question 2 Summary - Frequency of Different Communication Methods with Marketing/Sales](image)

The data listed in **Figure 4 Question 2 Summary** represents responses to the second question, regarding the interaction with the marketing department. Results listed by the rating of effectiveness of communication approaches, from least to most used are: social media (90% never used this method), instant messaging (60% never), text and print-based communication (50% never), face-to-face communication (around 41% never), telephone communication (13.1% never), and email communication (3.3% never). The most common among the communication modes was email (“often” to “always,” 97%). In terms of instant messaging, supply chain managers paid less attention to this method, with 60% of people saying not using instant messaging at all. Turning to social media, supply chain managers
implied that they hardly used this communication method with their co-workers (“never” to “seldom,” 81%).

According to Figure 5 Question 3 Summary, 42.2% of participants thought the face-to-face communication was a very effective method. Instant messaging and social media interactions with customers were considered to “need more development.” Email communication had a total of 96% of participants rating it at least “somewhat effective” or higher.

When evaluating communication effectiveness, face to face communication was suggested as the most effective communication method in the supply chain department with both, marketing department (very effective, 33%) and customers (51%). Telephone usage was second to face to face. Average about 24% thought telephone was very effective to use. However, the effectiveness of social media in practice was deemed low, since more than 75% of managers chose “needs development” for this mode. However, supply chain managers still have a long way to go with social media. Around 35% suggested that they would develop social media with internal use. 26% o supply chain managers agreed to develop the social
media communication with customers. Social media approach was still not highly applied to solve the demand fulfillment problems.

Figure 6: Question 4 Summary - Rate of Effectiveness in Internal Communication with Marketing/Sales

The chart above reflected that face to face communication needed the least development, because almost 90% managers considered face to face was effective. On the other hand, social media would need development. Compared the data in Figure 5 and Figure 6, the rate of effectiveness had very similar percentage and data range in the both charts. It was also shown on the overall internal and external rates
In terms of internal rate of effectiveness (Figure 7), only one of them thought the communication within the companies had effectiveness problems. Most of them (97 participants) were thinking their communication system within their company functioned effectively. From Figure 7, four more individuals thought their operation system used less effective communication approaches with their customers. The participants who took the survey overall had less confidence on the external communication methods.
In the very last question about communication process, 15% said they could not leave opinions on overall evaluation, 2% of the participants agreed that their internal and external communication process needs development, while 16% managers admitted their overall method to communicate not effective enough. Almost half of people in managerial level position admitted that their companies had capable and effective communication method with internal and external. In addition, 15% of the people considered that their supply chain department had tremendously effective communication.

For question 6, which was asking the position of the 129 respondents, there were 40 managers, 31 directors, 25 operation leaders, 16 senior vice presidents, 9 supply chain plan analysts, 4 planners, 3 presidents, and 1 consultant. The consultants in the team are not providing enough for the different aspects of communication effectiveness and efficiency.
Figure 9: Question 8 Summary - Company Size

Seen from Figure 9, a very significant 58% of respondents came from organizations with more than 10,000 employees. None of them had less than 20 people. 10% of them had medium size companies with 5,000 to 9,999 employees. The averages of the rest of the companies was 4.6%: 2,500 to 4,999 (9%),
1,500 to 2,499 (7%), 1,000 to 1,499 (3%), 750 to 999 (1%), 500 to 749 (3%), 100 to 499 (5%), and 20 to 99 (4%).

Figure 10: Question 7 Summary - Organization Types

As shown in Figure 10, there were no representatives from companies in the five categories listed in the survey listed below:

- Banks
- Diversified financials
- Insurance
Two kinds of companies had taken of 13% of the overall pie chart (each). One kind was retail and the other kind was related to pharmaceuticals, biotechnology or life science company. Participants who sold products related to food, beverage or tobacco contained around 12% of respondent group. Both technology companies and materials companies took up to 11% of the overall.

From the analysis in figure 11, 47% were B2B companies. 15% are B2C and 34% were both. Five of them (4%) indicated that their identity cannot be defined within B2B or B2C or Both. Two indicated that their only customer was the government. However, that means the identity of the government was not clear. Government could not be identified as an individual or a group of people. Also a fourth group category was mentioned, B2D. B2D was business to dealer.
Chapter 4

Discussion of Findings

From the last chapter, *Data Analysis*, face to face communication had been taken highly into consideration either externally or internally. 78.9% of managers suggested that they were doing a great job on communicating with customers. In terms of communicating with Marketing/Sales, 88.55% of managers considered that face to face communication interactions were capable or very effective. Within the company, face-to-face communication was most likely to require the supply chain department people to hold more and more meetings for solving problems.

Instant messaging was perceived as more effective when dealing internally (35% of respondents) with marketing/sales, than when dealing externally (18% of respondents) with customers (see Figures 5 and 6). Regarding the frequency of internal instant messaging usage, only 37.1% used this method very often and 4.3% used it all the time (see Figure 4).

Both the frequency of use and the rate of effectiveness of social media were ranked as very low. However, most the managers (74%) understood that social media was important. Also from the background information, most survey takers were holding high level positions. Since 52% of them were part of big companies with more than 10,000 employees, it is expected that communication played a big role in their success. However, their Marketing department counterparts were not included or discussed here. Therefore, how the perceptions of effectiveness vary based on functional positions was not addressed. This part would be also considered as future research. However, the very details about the performance of each
department somewhat was also private information for the companies. Hence, the suggestion I
had for improving the performance of the company was to have a communication beta testing
team to assess the effectiveness.
Chapter 5

Conclusion and Future Study

Something that defied my preconceived expectations during this study was the low rating of effectiveness and frequency of use of social media in customer service related communications. Since technology is everywhere in our life, companies do pay attention to social media, but not in the context communicating with customers in demand fulfillment scenarios. Social media impacts organizational performance more significantly each day (Choi & Thoeni, 2016). A recently discovered trend in technology development is to collaborate with customers (Izvercian, Şeran & Buciuman, 2013). This collaborative technology is called “Prosumer” (Tapscott & Williams, 2008). Transforming usual customers into human capital through media and allow them to share their knowledge to improve the current technology. Therefore, the capabilities of adapting direct communication will become incredibly important but seems underdeveloped for now.

Weakness of my survey:

I did not identify the time of the communication in the survey as an important dimension. Personally, I would like to see the difference between how the supply chain people react before the products go public, and how they communicate with the marketing people at various stages of the product lifecycle.

Age and gender of the participants was not collected, but could perhaps play a role in the perception of the effectiveness of different modes.
Large percentage of participants hold a higher position in their companies. Their perception of how good things might be very different than those below in the hierarchy. Direct line and middle level supervisors are presumably the ones in the front line solving the demand fulfillment issues. Therefore, they might bring a different vantage point when answering the exact same questions about the efficiency and effectiveness of internal and external communications within their firm. For any future survey design on this subject, I will use two forms of survey, one is for the higher level of managers, and the other one is for the general supply chain people who are dealing with the real issue with the marketing department. Also, by distinguishing the differences in people, I will also try to interview with them.

Question five is designed to get overall rating, which is kind of repeat question 3 and question 4. Therefore, I should delete question 5 but add another question that is related to frequency of the use of communication method with external group like customers, instead.

Although using summary statistics to describe large samples posed the risk of missing important detail, these comparisons could be a stepping stone in guiding future (more detailed) studies.
Appendix A

Survey

Cross-Functional Communication Effectiveness Survey

Conducted by Penn State University Park

Schreyer Honors College Student

Eudora Cao

Summary

We would appreciate your taking the time to complete the following survey. It should take about five minutes of your time. Your responses are voluntary and will be confidential. Responses will not be individually identified. All responses will be compiled together and analyzed as a group. If you have any questions or concerns, please contact Eudora Cao at xwc5100@psu.edu. If you have any questions regarding your rights as a subject in this study you may contact the Office for Research Protection at (814)865-1775 or access their website at www.research.psu.edu.

* 1. From your perspective, please rate how frequently your company experiences the following demand fulfillment issues:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Scales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order delivered without full quantity of product expected by customers</td>
<td>Never, Seldom, Often, Always</td>
</tr>
<tr>
<td>Order delivered with damaged product</td>
<td></td>
</tr>
<tr>
<td>Order delivered with invoicing errors (such as quantity, price, item, packing slip, or/and customer PO)</td>
<td></td>
</tr>
<tr>
<td>Order fulfillment lead time exceeds customer expected time</td>
<td></td>
</tr>
</tbody>
</table>
2. Please rate the following communication methods, based on their frequency of use to communicate with the MARKETING/SALES department/functional unit during the resolution of the demand fulfillment issues mentioned above:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Scales:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Face-to-face communication</td>
<td>- Never</td>
</tr>
<tr>
<td>- Telephone communication</td>
<td>- Seldom</td>
</tr>
<tr>
<td>- Text and print-based communication</td>
<td>- Often</td>
</tr>
<tr>
<td>- Email communication</td>
<td>- Always</td>
</tr>
<tr>
<td>- Social media interactions</td>
<td>- Unable To Answer</td>
</tr>
<tr>
<td>- Instant messaging</td>
<td></td>
</tr>
</tbody>
</table>

3. Please rate the effectiveness of each EXTERNAL communication format with CUSTOMERS to resolve the demand fulfillment issues mentioned above:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Scales:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Face-to-face communication</td>
<td>- Needs Development</td>
</tr>
<tr>
<td>- Telephone communication</td>
<td>- Somewhat Effective</td>
</tr>
<tr>
<td>- Text and print-based communication</td>
<td>- Capable and Effective</td>
</tr>
<tr>
<td>- Email communication</td>
<td>- Very Effective</td>
</tr>
<tr>
<td>- Social media interactions</td>
<td>- Unable To Answer</td>
</tr>
<tr>
<td>- Instant messaging</td>
<td></td>
</tr>
</tbody>
</table>

4. Please rate the effectiveness of each INTERNAL communication format with the MARKETING/SALES department to resolve the demand fulfillment issues mentioned above:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Scales:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Face-to-face communication</td>
<td>- Needs Development</td>
</tr>
<tr>
<td>- Telephone communication</td>
<td>- Somewhat Effective</td>
</tr>
<tr>
<td>- Text and print-based communication</td>
<td>- Capable and Effective</td>
</tr>
<tr>
<td>- Email communication</td>
<td>- Very Effective</td>
</tr>
<tr>
<td>- Social media interactions</td>
<td>- Unable To Answer</td>
</tr>
<tr>
<td>- Instant messaging</td>
<td></td>
</tr>
</tbody>
</table>

5. Please rate the effectiveness of your overall INTERNAL and EXTERNAL communication process to resolve the demand fulfillment issues mentioned above:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Scales:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Please rate the effectiveness of your INTERNAL communication process to resolve customer related issues</td>
<td>- Needs Development</td>
</tr>
<tr>
<td>- Please rate the effectiveness of your EXTERNAL communication process to resolve customer related issues</td>
<td>- Somewhat Effective</td>
</tr>
<tr>
<td></td>
<td>- Capable and Effective</td>
</tr>
<tr>
<td></td>
<td>- Very Effective</td>
</tr>
<tr>
<td></td>
<td>- Unable To Answer</td>
</tr>
</tbody>
</table>
6. Demographic Questions (7-9):
What is YOUR POSITION in your department?

7. What is your ORGANIZATION TYPE?
Other (please specify)

8. What is your COMPANY SIZE?
Other (please specify)

9. What do you think is the best description of your company, B2B, B2C, or both?
B2B (selling goods or services to other businesses)
B2C (selling goods or services directly to consumers)
Both
Other (please specify)
Appendix B

Email Content

Good Afternoon,

As part of CSCR’s student research engagement, we would like to request your assistance in completing this survey for Ms. Eudora Cao, a Schreyer Honors student. She is doing her honors thesis to identify how supply chain managers in various demand fulfillment roles use cross-functional and external communication to resolve service related issues.

Eudora has developed a short, less than five-minute survey under the supervision of Dr. Preciado of the Supply Chain and Information Systems Department. All responses are anonymous and confidential. The survey can be accessed at https://www.surveymonkey.com/r/Q7DNTST.

All recipients will have access to Eudora's published research by year end through CSCR. Again, keep in mind that all responses are anonymous and confidential.

If you have any questions or require more information in regards to the survey, please feel free to contact Eudora at xwc5100@psu.edu directly.

I would like to thank you in advance for taking time to participate in our student’s research experience.

Regards,

Steve


HEIKKILA, J. (2002) “From Supply to Demand Chain Management: Efficiency and


EDUCATION
The Pennsylvania State University Park, PA
Smeal College of Business, Bachelor of Science in Management
Minor in Information Science Technology
Minor in Psychology
Minor in Supply Chain Information Science Technology

AWARDS/HONORS
• The Present Sparks Award, Academic Reward August 2014 - May 2015
• Campus Life Award, Residence Reward May 2014

WORK EXPERIENCE
AFLAC Insurance Company State College, PA
Human Resources Internship
June 2016 - Present
• Reached out to over 100 resumes each week through online career websites, such as campus career service
• Reviewed and screened out 20 candidates’ resumes, and contacted directly with ten candidates through emailing
• Held phone interviews with over five candidates and collected the candidates’ information
• Communicated with them to arrange the best time for a second interview with hiring managers

SuperInterns.com Seattle, WA
Marketing Maestros & Social Media Specialist
December 2015 - June 2016
• Researched on over potential 200 clients through LinkedIn
• Gathered the companies’ information and updated the information to Podio, displaying the information of the companies’ internship positions on SuperInterns.com website, and maintained connection with PR agency
• Assisted Human Resources Department to get reviews from the current and previous interns
• Held and Led weekly team meeting as a leader and analyzed company performance with teams over three hours

Corazon Guest House Guadalajara, Mexico
Business Administrative Staff
December 2015 - January 2016
• Promoted the hostel online through over 10 hotel searching websites, such as Booking.com and Airbnb.com
• Built up reputation and image for the guest house and made it more visible to targeted audiences
• Created over five hostel videos and edited one website for the house, sharing them via popular social media

Fundraiser, Penn State Lion Line University Park, PA
Tele Fundraiser
September 2015 - May 2016
• Worked for three shifts a week, totaling average of 9 hours
• Communicated over 40 alumni via phone systems within three hours per shift
• Adjusted conversation topics based on the background and attitudes of alumni to increase interest in gifting
• Encouraged alumni to contribute to Penn State, and negotiated alternate giving arrangements

Schuylkill Haven Recreation Department Schuylkill Haven, PA
Recreation Assistant
January 2015 - May 2015
• Developed ten more events to make the community better and get hundreds of people involved in the activities
• Responded to the emails from the community and answered any questions concerning the activities
• Updated the webpage for the department on a daily basis

LEADERSHIP
• Council of Commonwealth Student Governments, Executive Producer June 2016 - Present
• PSU Global Chinese Connection (GCC) Chapter, Vice President of Alumni April 2016 - Present
• University Park Allocation Commitment (UPAC) March 2016 - Present
• Non-Profit Photo Studio, HR Agency February 2016 - Present
• Transition Leader April 2016
• International Club, President January 2015 - May 2015

SKILLS/INTERESTS
• Fluent in Chinese, Mandarin, Cantonese, Wenzhou Hua
• Low intermediate Photoshop, Access, Excel Macro, C++
• Swimming, Skiing, tennis, board skating, climbing, hiking, and traveling