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Immediate Attention Please! What Matters To Customers Using A Social Network To Complain: Empirical Evidence From The Airline Industry

Run H. Niu
Webster University

Ying Fan
University of Colorado - Colorado Springs

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IMMEDIATE ATTENTION PLEASE! WHAT MATTERS TO CUSTOMERS USING SOCIAL NETWORK TO COMPLAIN: EMPIRICAL EVIDENCE FROM AIRLINE INDUSTRY

Run H. Niu, Webster University
Ying Fan, University of Colorado Colorado Springs

The popularity of social networks and smart mobile devices makes it convenient for customers to complain about unsatisfied service experiences by posting messages online, which needs immediate attention from service providers. Since the airline industry is one of the industries with lowest customer satisfaction and some airlines have been trying to use social networks for customer service, we collected tweets from five major airlines' Twitter accounts to uncover the critical failure points complained by customers and to explore the missing links that cause the mismatches between airlines' strategic intent and customers' needs and expectations. Our findings revealed that customers' complains mainly center on unsatisfied primary needs in five broad categories: explicit services, supporting facilities, implicit services, facilitating goods, and facilitating information. The top three most complained broad categories are explicit services, supporting facilities, and facilitating information. In addition, we identified that customers' dissatisfaction is mainly due to the mismatch in three operation areas in the airline industry: (a) airlines' emphasis on cost financial performance doesn't match customers' expectation on best values, (b) airlines' focus on process-centered approach doesn't match customers' preferences on customer-centered approach, and (c) lack of information and unsynchronized communication doesn't meet customers' real time information and communication needs. Our findings can provide valuable insights for airline executives to improve their service operations.

"In a headquarters control room, with big monitors on the wall streaming social-media mentions of airlines, a few Delta Air Lines customer-service agents hunt for traveler complaints and try to solve problems, even bending the airline's rules, before snafus go viral and turn into public-relations black eyes. A computer program searches for terms like "Delta sucks." When bad weather creates delays and missed connections, the tweets fly, and the Delta agents can respond with specific information about the causes of delays. Some customers tweet from 35,000 feet using on-board Wi-Fi, and the social-media customer service agents can make sure they have been rebooked before they land."
(McCartney, 2010)

Service quality and customer satisfaction have been positively related to firm performance (Ostrowski, O'Brien, & Gordon, 1993). For the US airline industry, it has been a bumpy ride on the road to improve customer satisfaction. American Customer Satisfaction Index shows that U.S. airlines fell to last place among 47 industries in 2010 (ACSI, 2010). In addition, the customer satisfaction survey conducted by J.D. Powers annually has revealed that the airline industry has kept struggling with passenger expectations (J. D.Power, 2012).

Traditionally, customers complain to a business through traditional channels such as phone, email, airport service counter, or online web forms. Research has shown that out of the unsatisfied customers, only four percent file complaints, while 96 percent of them never bother to complain (Fitzsimmons & Fitzsimmons, 2011). The silence may be largely due to the inconvenience of filing complaints and customers' low expectation on receiving meaningful responses and compensations. In recent years, the popularity of social networks such as Twitter and Facebook has revolutionized the way people communicate. The popularity of smart mobile devices makes it very convenient for customers to type a short sentence to complain about an unsatisfied service experience at real time on various social networks. The opening vignette demonstrates how Delta has been using Twitter to manage customer dissatisfaction. Joining Delta, SouthWest, Alaska, American, and JetBlue have been among the first movers to use Twitter extensively to help customers (McCartney, 2010). We conducted this study, which to our knowledge, is the first attempt to investigate application of social networks for service operations, to investigate what significant issues are reflected in airlines' social network accounts by passengers through analyzing customers' complaints on various airlines' Twitter accounts.

Complaint and negative word-of-mouth are two natural responses to customer dissatisfaction (Richins, 1983). The nature of social networks makes it possible for customers to complain and disseminate negative world-of-mouth simultaneously. Furthermore, the influence of negative word-of-month can grow exponentially at social networks. For example, while a dissatisfied customer tells an average of 17 people (Allsop, Bassett, & Hoskins, 2007) about a bad experience, Twitter users on average have 557 followers (Bakshy, Hofman, Mason, & Watts, 2011) to spread the message. Besides, the negative word-of-mouth goes far beyond Twitter into the large internet network. Therefore, major airlines have started to assign social network agents to handle customer complaints at real time to mitigate the negative influence.

On one hand, the social network approach of handling customer complaints seems very positive. Examples of

airlines proactively trying to improve customer service have been few and far between in recent years. Using social network sites like Twitter, these airlines can deal with customer complaints in real time, which is critical to customer satisfaction. On the other hand, these airlines create two levels of customer service for social network users and for those who do not use social networks. For example, social network agents in Delta offer customers quick fixes, such as rebooking and reimbursements. Sometimes that means even waiving rules. Airline executives have been concerned about whether this approach will encourage customers to be very aggressive and try to squeeze a little more out of airlines (McCartney, 2010).

The operational challenge of the social network approach calls for a systematic response approach for service recovery. Using this approach, social network agents will be able to refer to a planned protocol to respond to customers in a prompt and consistent way. Development of the protocol can be based on the identification of the most complained issues and predetermined appropriate responses and criteria for compensation (Fitzsimmons & Fitzsimmons, 2011). In this paper, we identified the most complained issues posted by Twitter users to help us better understand these critical failure points and provided insights for airlines to develop a systematic response approach for service recovery. The dissatisfaction of a customer may be due to missing links between what organizations intend to provide (i.e., strategic intent) and what customers may require or expect (i.e., customers' needs) (Goldstein, Johnston, Duffy, & Rao, 2002). Therefore, we further addressed what the missing links might be causing the mismatch between organizations' intent and customers' expectation to provide managerial insights for improvement.

In the following sections, we developed a framework that classifies airline services from the view of service package. We then used qualitative data (i.e., tweets in this study) collected from a sample of airlines' Twitter accounts to identify the critical issues reflected by customer complaints and the missing links between airlines' intent and customers' expectation. Lastly, we concluded with the implications of the study for airline managers and discuss future research directions.

LITERATURE REVIEW AND FRAMEWORK DEVELOPMENT

To ensure customers a pleasant experience, airlines need to provide service bundle with great complexity. It is very difficult to capture each moment of truth (R. B. Chase, Aquiland, & Jacobs, 1998) when the service process involves multiple stages and a crew of contact personnel. Next, we reviewed the literature on service package and airline services and identified a valuable framework to classify airline services so we could apply this framework to address our research questions.

To describe a service, researchers have used terms such as service package or customer benefit package (CBP), service offering, and service concept (Sasser, Olsen, & Wyckoff, 1978; Collier, 1994; Fitzsimmons & Fitzsimmons, 2011; Chase, Aquiland, & Jacobs, 1998; Goldstein, Johnston, Duffy, & Rao, 2002; Roth & Menor, 2003). Research on service package has primarily focused on the components of the package. Chase and Erikson (1988) highlighted a total service package including tangible goods and facility as well as intangible service features. CBP, used by Collier (1994), describes service package as a set of tangible and intangible features that customers recognize, pay for, use, or experience. It contains three components: (a) primary goods or services (i.e., core offering), (b) peripheral goods or services, and (c) variants (e.g., location or firm specific to surprise customers). Fitzsimmons and Fitzsimmons (2011) defined that service package included supporting facility, facilitating goods, information, explicit services, and implicit services.

Sasser, Olsen, and Wyckoff (1978) defined service concept as "the total bundle of goods and services sold to the customer and the relative importance of each component to the customer" (p. 14). They believed service concept contained three elements: (a) facilitating goods, (b) explicit services, and (c) implicit services. Edvardsson and Olsson (1996) described service concept based on the prototype concept in the new product development literature. The prototype view of service concept has stressed what is needed from the customer and how it is achieved by the provider. It has also stressed matching the extent and the nature of customer needs (i.e., primary and secondary) with the service offered (i.e., core and supporting services). Clark, Johnston, and Shulver (2000) visualized service concept as a mental picture illustrating what a service looks like (i.e., value, form and function, experience, and outcomes). A shared vision of service concept between the service provider and the customer could help to minimize the gap between service delivery and customer expectations. Goldstein, Johnston, Duffy, and Rao (2002) synthesized the prototype view and the mental picture view of service concept. They further argued that service concept should serve as means of concretizing the nature of the service. The concretization should involve three components: (a) specifying what is needed and how it is done, (b) matching the what and the how, and (c) bridging the discrepancy between the provider's strategic intent and the customer's expectation.

Expanding the domain of service concept, Roth and Menor (2003) defined a total service concept consisting of core and peripheral service elements. While customers' primary needs should be met by core services, their secondary needs may be met by peripheral services. Roth and Menor (2003) identified five elements in core services: (a) the supporting facilities, (b) the facilitating goods, (c) the facilitating information, (d) the explicit services (i.e., experiential or sensual), and (e) implicit services (i.e.,

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psychological). They also highlighted the distinction between the intended (i.e., planned) and the realized (i.e., actual) service concept.

Research on airline services has been focused on the different stages and aspects of the services. Chen and Chang (2005) examined airline service quality from a process perspective. The authors investigated a two-stage airline service process: ground services and in-flight services. Edvardsson (1992) studied airline service failures perceived by business travelers using critical incident approach. Clark, Johnston, and Shulver (2000) pointed out that research on airline services mostly uses the bits and pieces approach, which stresses certain elements or processes in service design. While this approach helps to reflect the complexity of the nature of airline services, it lacks the ability to capture a greater picture of the service concept. Furthermore, the authors argued that the bits and pieces approach is limited to explore the how and what perspective of service concept, but provides little insights on where gaps between airlines' strategic intent and customers' expectation occurred.

Based on the literature review, a framework has been developed for airline service package. Our objective was to identify the key elements of airline services, to investigate what matters to customers most, and to identify where the broken links are between airlines' strategic intent and customers' expectation. Our framework for classifying key elements of airline services has been adapted from the previous research on service concept and service package (Collier, 1994; Fitzsimmons and Fitzsimmons, 2011; Roth and Menor, 2003). We considered that airline service package consists of core services and peripheral services. Core services satisfy customers' basic need, which is air travel with affordable prices. Peripheral services are not essential to customers, but are designed to supplement and enhance customer experience. Among core services, we included explicit services, implicit services, supporting facilities, facilitating goods, and facilitating information.

METHODOLOGY

The exploratory nature of our research questions called for a qualitative research approach based on grounded theory (Glaser & Strauss, 1967). Grounded theory approach is used to denote theoretical constructs derived from qualitative analysis (Corbin & Strauss, 2008). Grounded theory is originally proposed to be built strictly from data using inductive logic (Glaser and Strauss, 1967). Further research has refined this approach to connect extant literature with the theory building process (Eisenhardt, 1989). Barratt, Choi, and Li (2011) contended that priori constructs or ideas could provide insights on new research design and data collection. Thus, our study started with a service package framework of broad categories based on literature review. Tweets from a sample of airlines' Twitter accounts were collected so we could apply hierarchical coding approach to complete our airline service package framework, which is shown in Table 1.

Data Collection

Because our research questions centered on identifying the service elements complained most by customers on Twitter, an in-depth study on customers' complaints via major airlines' Twitter accounts was needed. To collect data, we employed purposeful sampling approach, which focuses on information-rich cases (i.e., airlines) that demonstrate the phenomenon of interest (i.e., customers complaining on Twitter) intensely (Patton, 2002). Thus, we sampled major airlines that operate Twitter accounts for customer service and use Twitter intensively to respond to customer complaints. According to the United States Bureau of Transportation Statistics, a carrier that posts more than one billion US dollars in revenue during a fiscal year is considered as major (BTS, 2012). Therefore, we first reviewed the Twitter accounts of major airlines. Our search on Twitter revealed that it is common for airlines to have multiple Twitter accounts to serve for different purposes. Some airlines have designated customer service accounts. Some have accounts for multiple purposes. However, due to the inconvenience and possible long response time with other channels, many customers choose to complain through general accounts and expect to receive responses, which force airlines to respond.

Five major airlines, Delta, United, American, JetBlue and Air Canada were selected for this study. These five major airlines' Twitter practices have been documented in media coverage, such as Wall Street Journal, Bloomberg BusinessWeek, and Toronto Star. The characteristics of the sample airlines can be found in Table 2.

TABLE 1

Elements of Airline Service Package

Broad categories	Tier 1 Subcategories	Tier 2 Subcategories	Tier 3 Subcategories
Core services: Explicit services (i.e., experiential or sensual benefits for the customers. Explicit services consist of the essential or intrinsic features of the service.)	People	Baggage crew, check-in staff, customer service agents, flight crew, gate agents, pilots, ticket agents, and twitter agents	
	Process	Booking	Flight cancellation, reschedule, or delay, I\initial booking, overbooking, and rebooking
		Before flight	
		Check in and boarding	Check in, seat selection, upgrading, and boarding
		Customer service system	
		In-flight services	
		Miscellaneous fees (e.g., baggage and seat fees)	
		After flight	Baggage claim and deplaning
Core services: Implicit services (i.e., Psychological benefits that the customer may sense only vaguely.)	Joy		
	Safety		
Core services: Supporting facilities (i.e., physical resources that must be in place before a service can be offered.)	Aircraft		
	Airport		
	Check in counter		
	Gate waiting area		
	Gates		
	Self check-in kiosk		
	Sky club and sky priority check-in		
Core services: Facilitating goods (i.e., the material consumed by the service provider or the customer during the service process.)	Meals and beverages		
	Supplies (e.g., blankets, pillows, headsets, utensils)		
Core services: Facilitating information (i.e., data and communication that help to support and enhance the execution of the explicit services.)	Airline updates		
	Gate and baggage area communication		
	Seat availability chart		
	Website online service		
Peripheral services (i.e., services designed to satisfy customers' secondary needs.)	Business partners service		
	Credit card services		
	In-flight communication services and fees		
	In-flight entertainment and fees		
	In-flight shopping services		
	Reward programs		
	Service guarantee		

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TABLE 2

Characteristics of the Sample Airlines

Sample Airlines	Twitter account	Number of Followers (as of July 24, 2012)	2011 Enplaned Passengers (in millions)**	US domestic market share (2011)**
Delta Airlines	@DeltaAssist	57,351	113.485	16.20%
United Airlines	@United	126,880	50.474	11.50%
American Airlines	@AmericanAir	396,768	86.042	13.10%
JetBlue Airways	@JetBlue	1,678,227	26.353	4.80%
Air Canada	@AirCanada	44,360	5.679*	N/A

* Foreign carrier scheduled international service to and from the United States
**Data reported by RITA at Bureau of Transportation Statistics

Among these five airlines, only Delta has a designated customer service Twitter account. Although other airlines' general Twitter accounts are designed for a wide variety of purposes, social network users do use these accounts to complain. Therefore, we were able to capture customer complaints from these accounts. Note that DeltaAssist has a much lower number of followers than other domestic airlines due to its sole purpose of handling customer service while other airlines' accounts serve for multiple functions.

Because tweets are publicly available data, we were able to view and collect tweets by following the airlines and the customers' Twitter accounts. Tweets posted on these five airlines' Twitter accounts were randomly collected from September 2011 to January 2012. Our unit of data collection was what we call mini case. A mini case is the conversation exchange between a customer and an airline's social network agents. For each mini case, we tried to capture the rounds of back and forth between the customer and the agents until the complaint was resolved, directed to other customer service channels, or there was no further response from either side. We collected 347 cases in total with 247 from Delta, 19 from United, 27 from American, 34 from JetBlue, and 20 from Air Canada. Because Delta is reportedly the first airline to handle customer complaints through Twitter, it has the most intensive message exchanges. Naturally, most of our data were collected from Delta's Twitter account. Because our subject of interest was customer complaints, we did not include tweets that reflected customers' questions or the airlines' updates and promotions.

Data Analysis Procedures

The tweets collected were stored in a 71 page Word document, which was then imported to NVivo 9. Following the analytic process outlined by Corbin and Strauss (1990), we conducted analysis on the texts and graphics included in the collected tweets. Our analysis employed three types of coding approaches, open, axial, and selective coding (Corbin & Strauss, 1990). Starting with open coding, both of us read through the data, considered the possible meanings, and examined the context of the complaints carefully. Then we worked independently to give interpretive labels to the data by coding the relevant texts or graphics into different nodes. We compared our independent work frequently during the analysis process. When there was any difference or disagreement, we discussed and analyzed the differences until reaching consensus. The open coding approach helped us identify the elements of airline service package reflected by the data. Furthermore, we used axial coding to crosscut or relate these identified service elements to each other. Axial coding was done by relating the elements identified in open coding (i.e., nodes) to the broader categories depicted in Table 1. The processes of open coding and axial coding were intertwined because we constantly added, deleted, revised, or integrated nodes during the analysis process.

As the final stage of the analysis, we used selective coding to unify all the service elements identified by open and axial coding and explored the most complained elements reflected by the data. Also in this stage, we focused on these most complained elements, captured the descriptive details in the relevant tweets, and identified the missing links between airlines' strategic intent and customer expectations.

FINDINGS AND DISCUSSIONS

Critical Failure Points in Airline Service Package

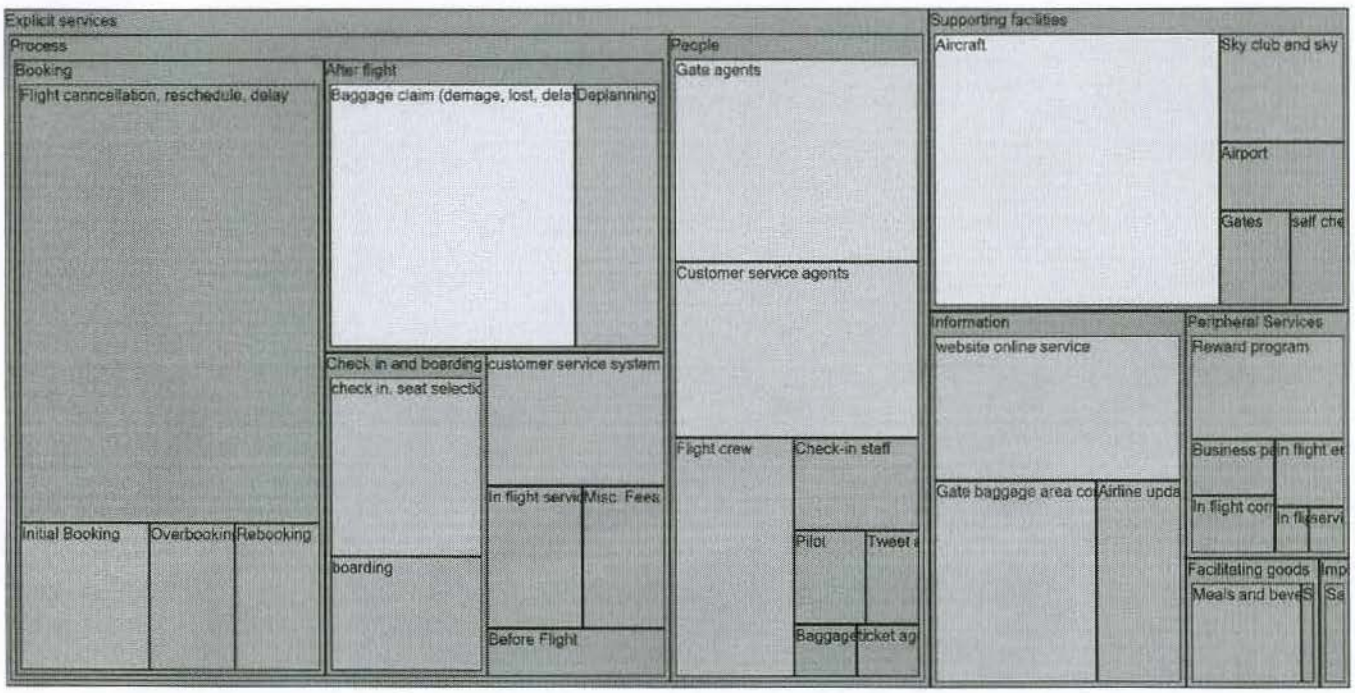
Our first research question was what significant issues are reflected in companies' social network accounts. We addressed this question by identifying the critical failure points tweeted real time by customers. Elements of airline service package emerged from our analysis were classified in the six broad categories in the service package framework in Table 1.

Figure 1 is a tree map that captures the categories that we defined in the airline service package and the relationship between the broad categories and the subcategories. The size

of a rectangle shows the number of complaints in that category. A category with a large number of complaints is displayed as a large rectangle. For example, the largest rectangle with the label "flight cancellation, reschedule and delay" indicates that most complaints are tweeted in this category.

FIGURE 1

Airline Service Package Tree Map



The numbers and percentages of customer complaints in the six broad categories are shown in Figure 2. Customer complaints centered on core services (95.6%), which include five broad categories: (a) explicit services, (b) facilitating goods, (c) implicit services, (d) information, and (e) supporting facilities. Only 4.4% of the complaints were about the peripheral services such as reward programs, in-flight communication, and entertainment services. Consistent with previous studies on airline services (Edvardsson, 1992; Pakdil & Aydin, 2007; Rhoades & Waguespack, 2008), our findings underscored the criticality of the core services, which are designed to meet customers' primary needs. Customers tweet their frustration and dissatisfaction mostly when their primary needs are not met.

Our data showed that only 4.4% of the complaints belonged to peripheral services. The main reason may be that peripheral services are designed to meet customers' secondary needs. Therefore customers are more tolerant. Another possible reason is that customers do not perceive the failure of peripheral services as an urgent matter and therefore choose to either ignore it or complain through traditional channels. Figure 2 also reveals that the top three most complained broad categories are explicit services, supporting facilities, and facilitating information. Next, we reported and discussed the findings in these three subcategories.

Explicit Services

In the explicit service category, two major tier one subcategories, people and process, emerged from our analysis. The data revealed that customers were not satisfied with the service process in 72% of the cases. And in 28% of the cases, customers complained about personnel involved in the various stages of the service process as shown in Figure 3. This finding complemented the well-established quality management literature in production, which attributes major causes of quality problem to process, not people (Deming, 1982), though airlines services involve high degree of encounter between customers and personnel. It may be due to high degree of complexity in airline service package, which makes the service process prone to errors.

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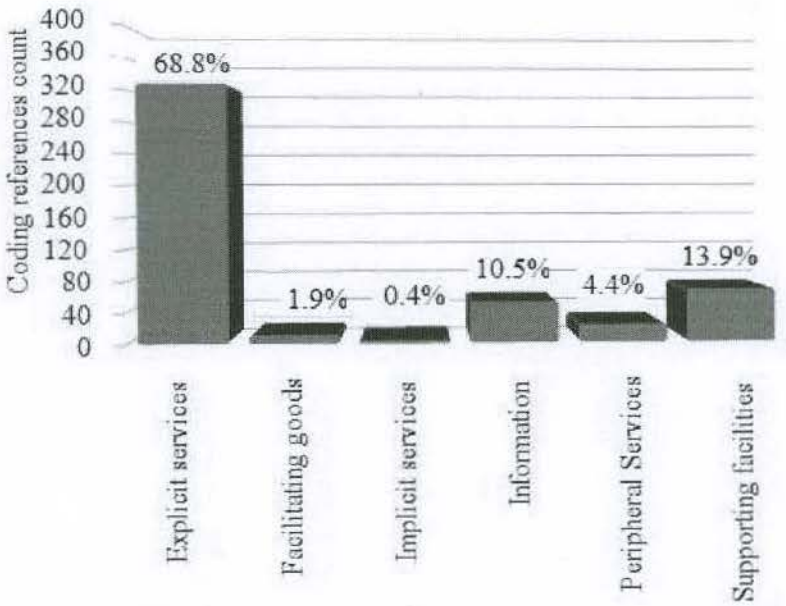
FIGURE 2

Frequency of Customer Complaints by Each Broad Category



Note: The total percentage does not equal 100% because of rounding numbers for easy display.

Within the process subcategory, seven tier two subcategories emerged from our analysis. Booking (55%), after flight (29%), and customer service system (6%) counted for the top three most complained elements. The frequency of the complaints by each tier two process is displayed in Figure 4. What frustrates customers most was the booking process before the flight when their travel plans are ruined by hours of delays, rescheduling, and cancellations.

It was reported that about 60% of flight delays were due to uncontrollable causes such as weather (BTS, 2012), which is sometimes understandable by customers. What matters most to customers is what assistance they receive after a delay. Customers request updated information, an honest and clear explanation for the delay, and most importantly assistance to help them rebook so that they can fly to their destinations as soon as possible. Instead, the data showed that in most of the cases customers never knew what has happened, obtained unfair compensation if there was any, and received little help to continue their travel.

To improve on-time performance, airlines need to have an assistance protocol in place in case flight delay is unavoidable. Our findings suggested that updating information, providing assistance for rebooking, and setting criteria for fair compensations are the essential components of the protocol.

Within the people subcategory, gate agents (33%), customer service agents (29%), and flight crew (19%) topped the complaint list as shown in Figure 5. Gate agents are often perceived by customers as the onsite real time helpers. However, the data revealed that gate agents offered little help. Common problems at the gates include having trouble with upgrading or seat assignment, providing no updated information, agents' way of handling baggage, and agents being rude and lack of information.

Our analysis in the people subcategory suggested that airlines can improve their service quality by fortressing both onsite agents and offsite agents. Onsite agents need to be better equipped with information and technology so that they have the capability to help customers, which evidently has been perceived as a necessity by some airlines. For example, American Airlines and others have given agents more information on tablets and smart phones. They have equipped their roving agents with hand-held devices that can print boarding passes and bag tags and hold information about top-level frequent-flier status, wheelchair request and information that helps to reseat customers (McCartney, 2012). Motivations are also needed to stimulate agents' commitment to work and empathy to customers. Offsite agents at Twitter or at traditional channels need to have the capability to provide updated information so they can be a second source.

FIGURE 3

Frequency of Complaints about Process versus People

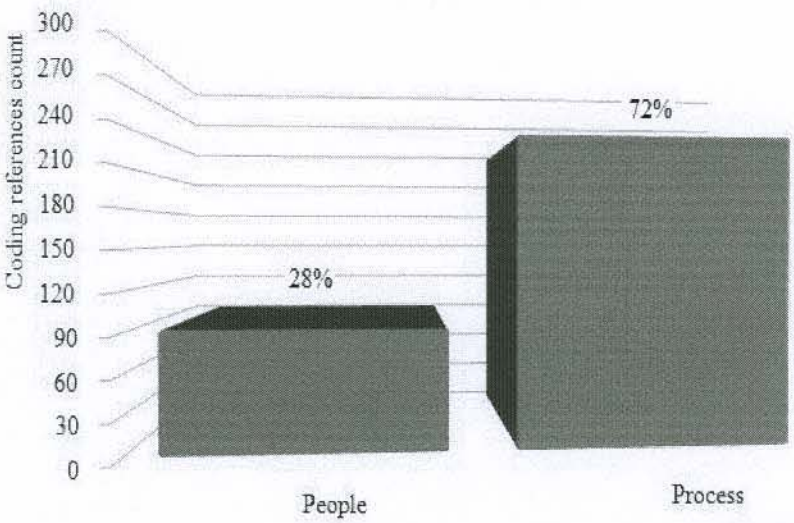
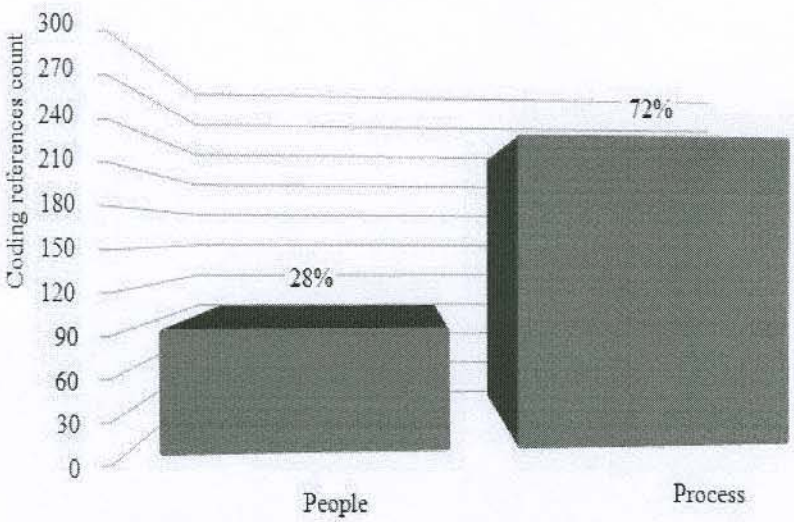


FIGURE 4

Frequency of Complaints by each Tier 2 Process



Note: The total percentage does not equal 100% because of rounding numbers for easy display.

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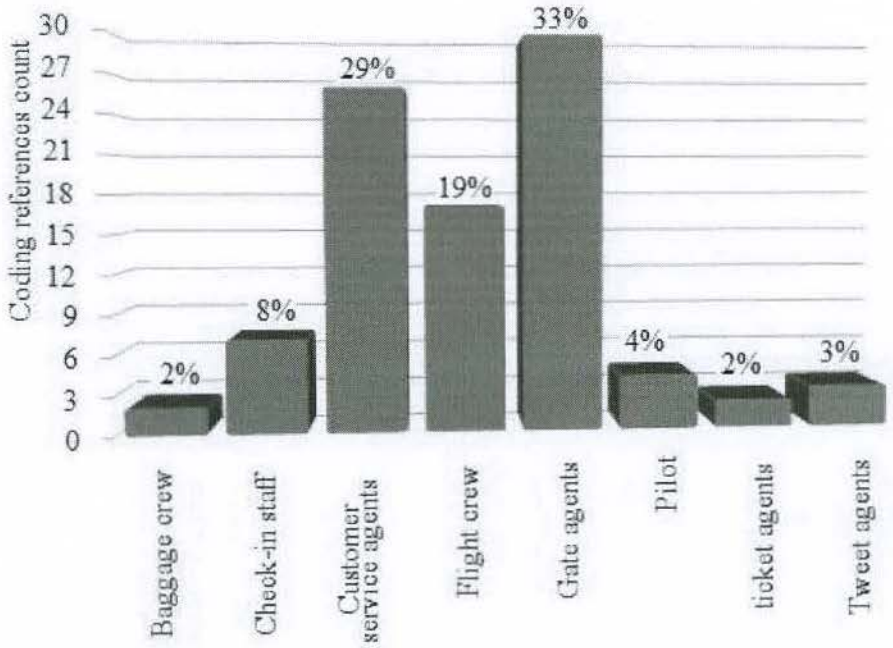
FIGURE 5

Frequency of Complaints by each Personnel Group



Supporting Facilities

The support facility category ranked the second on the customers' most complained broad categories. A majority of the complaints in this category were related to aircrafts, sky club and sky priority check-in, and airline-managed airport facility. Among these facilities, aircrafts counted for significantly higher volume of complaints (70%) as shown in Figure 6.

Customers expressed their concerns about safety of the aircraft, broken seats, and cleanness of the aircrafts. It was interesting to observe that customers complain about these onsite problems to offsite social network agents. One possible reason is that customers expect little help from the flight crew. But Twitter agents can only report the problems to the maintenance department or direct the customer to notify the flight crew. From the data, we suggested airline agents differentiate maintenance issues from issues related to the environment of the facilities. Problems such as smell or cleanness may be solved by onsite agents immediately. For example, flight crew may be equipped with tool kits to fix small problems with trays, headlamps, etc.

Facilitating Information

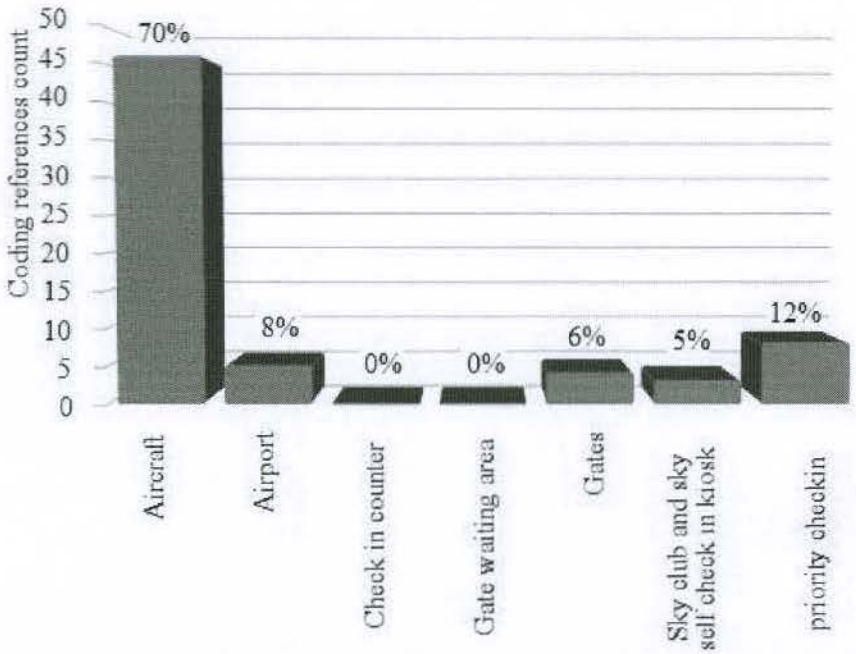
Facilitating information, defined as data and communication that help to support and enhance the execution of the explicit services, was found to be the third most complained category. The data reflected that customers were mostly concerned with website online services, gate or baggage area communication, and airline updates as shown in Figure 7.

Facilitating information is crucial to a satisfactory experience, especially when airline service involves a series of dependent processes. One broken point in these processes could affect a customer's entire travel plan. The data reflected that customers primarily use airlines' website online services for booking and check-in. Customers are particularly frustrated when they spend hours online, but only receive error messages and miss the best price. Flight ticket price can fluctuate dramatically within minutes, even seconds. The lack of the reliability of the reservation system often makes it difficult for customers to secure the best price.

It is not uncommon that the information provided on airlines' websites is obsolete and causes customers' confusion on changes on schedules or on policies or procedures. We also developed a subcategory named gate or baggage area communication, because we frequently identified tweets related to this issue. A remedy can be that airlines develop a synchronized service process by drawing insights from the supply chain synchronization research to align their service processes based on (a) a consistent set of shared data, (b) a system wide perspective, (c) rapid communication to all relevant parties, and (d) proactive responses to events, changes, or exceptions (Hahn, Duplaga, & Hartley, 2000; Fraser, 1997).

FIGURE 6

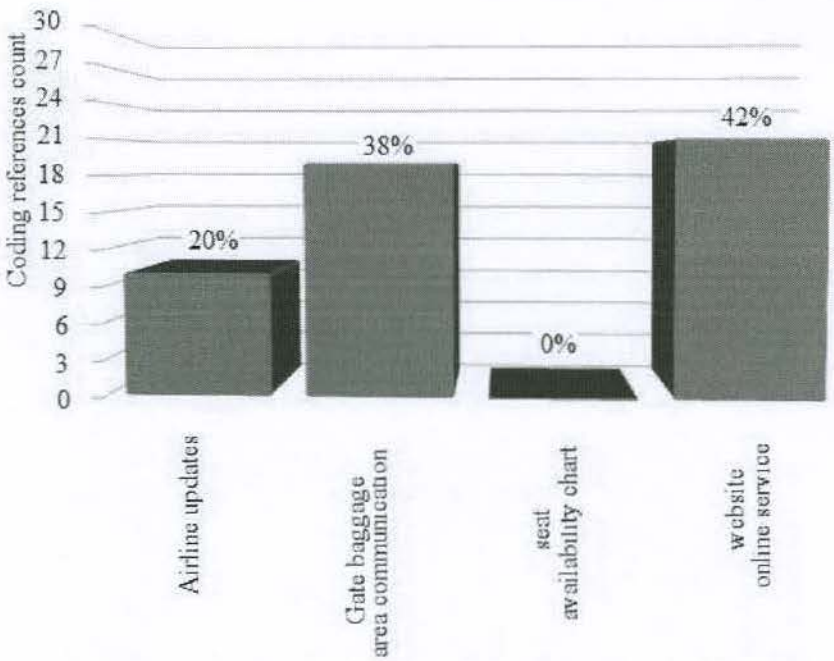
Frequency of Complaints by Different Supporting Facilities



Note: The total percentage does not equal 100% because of rounding numbers for easy display.

FIGURE 7

Frequency of Complaints by Different Issues Related to Facilitating Information



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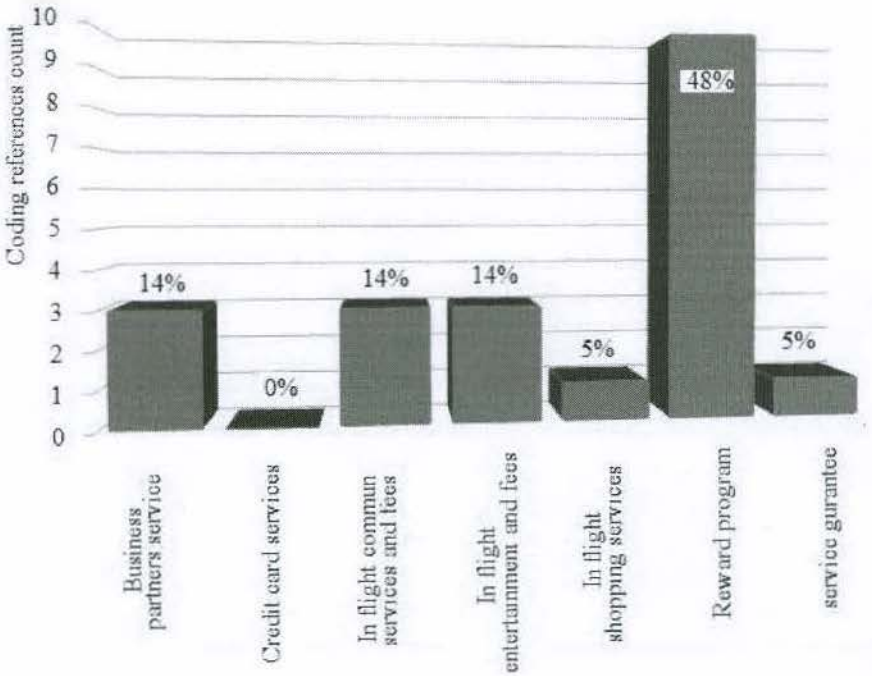
Although complaints of peripheral services counted for 4.4% of the total complaints, what customers complained about in this category is worth noticing. Among the seven subcategories emerged from the data, complaints about the reward programs topped the list, followed by business partner services (i.e., services coordinated with other airlines), in-flight communication services and fees, and in-flight entertainment and fees which tie at the second place as shown in Figure 8.

FIGURE 8

Frequency of Complaints by Different Issues Related to Peripheral Services



Reward programs are common practices among airlines to attract and retain customers. Yet, according to the data, the benefits of these programs can be very difficult to realize. Although falling into the peripheral service category, airlines should pay particular attention to the problems related to reward programs. This is because these unsatisfied customers are frequent flyers (i.e., loyal customers) who count for sustainable business for airlines. Airlines can learn from studies on unconditional service guarantee to service their loyal customers better. Important features of a good service guarantee include easy to understand and communicate and easy to invoke (Hart, 1988). Thus, airline reward programs should clearly state how the air miles are rewarded and keep customers informed. Second, customers should not have to jump endless hoops to invoke a guarantee. Therefore, policies and procedures to redeem the air miles should be simple and clear so that customers can use their air miles without hassles.

The critical failure points identified in our study are closely linked to the five service quality dimensions in the well-established SERVQUAL measures (Parasuraman, Zeithaml, & Berry, 1988). The five dimensions in the SERVQUAL instrument include reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman, Zeithaml, & Berry, 1988). Reliability depends on a well-designed service process and professionally trained personnel. Responsiveness, assurance, and empathy are at the hands of the people element in the service package. Customers' perception on the tangibles is based on their experience of using the physical facilities, equipment, and information system in the service process. Every element in a service package plays a vital role in shaping customers' perception of service quality. Table 3 shows the link between the identified service package in this paper and the well-known SERVQUAL dimensions.

TABLE 3

Elements of Airline Service Package and SERVQUAL Dimensions

Broad category and definition	Tier 1 Subcategories	SERVQUAL dimensions
Core services: explicit services(i.e., experiential or sensual benefits for the customers. Explicit services consist of the essential or intrinsic features of the service.)	People	Reliability, responsiveness, assurance, and empathy.
	Process	Reliability
Core services: implicit services (i.e., psychological benefits that the customer may sense only vaguely.)	Joy	Reliability, responsiveness, assurance, empathy, and tangibles
	Safety	
Core services: Supporting facilities (i.e., physical resources that must be in place before a service can be offered.)	Aircraft	Tangibles
	Airport	
	Check in counter	
	Gate waiting area	
	Gates	
	Self check-in kiosk	
	Sky club and sky priority check-in	
Core services: Facilitating goods (i.e., the material consumed by the service provider or the customer during the service process.)	Meals and beverages	Tangibles
	Supplies (e.g., blankets, pillows, headsets, utensils)	
Core services: Facilitating information (i.e., data and communication that help to support and enhance the execution of the explicit services.)	Airline updates	Tangibles and reliability
	Gate and baggage area communication	
	Seat availability chart	
	Website online service	
Peripheral services (i.e. services designed to satisfy customers' secondary needs.)	Business partners service	Reliability, responsiveness, assurance, empathy, and tangibles
	Credit card services	
	In-flight communication services and fees	
	In-flight entertainment and fees	
	In-flight shopping services	
	Reward programs	
	Service guarantee	

MISSING LINKS BETWEEN AIRLINES' INTENT AND CUSTOMER EXPECTATIONS

Financial Performance vs. Service Quality

The tree map in Figure 1 shows that "flight cancellation, reschedule and delay" and "aircraft" are the two most complained categories. It reflects that airline service quality is deteriorated by the industry's relentless cost-cutting efforts. Due to increasing fuel cost and labor cost, airlines have been struggling with financial problems during the past 10 years. More than 200 US airlines have been through bankruptcies (Solomon, 2012). The tremendous pressure on financial performance makes airlines explore every possible strategy to cut cost and increase revenue. For instance, most airlines have outsourced their maintenance and repairs to contractors. Concerns have been raised about the quality of the outsourced maintenance work (McGee, 2012). Overbooking and yield management have been widely used in the airline industry to maximize revenue. It is possible that these approaches cause flight cancellation and rescheduling.

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With all the price comparison online tools available, customers have gained the ability to purchase tickets with the lowest prices. However, they expect to receive high quality service. When customers have frustrating experiences, airlines incur costs to manage a service recovery system, to compensate, and to mitigate negative word of mouth. Therefore, airlines need to be cautious in pursuing financial performance. Balancing the tradeoff between cost, revenue, and service quality should be the primary focus for airlines' service package design.

Process-Centered Service vs. Customer-Centered Service

One implication we drew from our analysis is that airline service remains process-centered service when customers expect customer-centered service. For example, an interesting theme emerged from our analysis was that there were many complaints on the after-flight process. While our analysis validated that lost baggage continues to be a problem for the airline industry in the after-flight process, we added a new subcategory called deplaning. The biggest concern in deplaning is lost items. Customers who immediately report a lost item after deplaning complain about getting no help with retrieving it.

When processing customer requests for retrieving lost items, airlines have set procedures applying the process-centered approach and customers need to follow the procedures under all conditions. Customers find these procedures little help and it takes a long time to have any results. Airlines need to consider customer-centered approach and innovative service process design to help customers. For instance, flight service personnel can search the flight and send out emails, text messages, or announcements on social network websites immediately to customers if some lost items are found on the plane.

Unsynchronized Communication vs. Service Process Synchronization

Our analysis highlighted the significance of facilitating information, to which 10.5% of the complaints belongs. More importantly, we found that the complaints in other categories, such as process and people, are largely related to lack of information or communication. For example, many complaints about gate agents are that these agents cannot provide updated information while customers expect real time information updates and communications. Airlines need to achieve service process synchronization to meet customers' needs on real time information. A system perspective, integrated data management system, and coordination of various functional teams are required to achieve service process synchronization.

CONCLUSIONS

We addressed two research questions in this study. First, we investigated what significant issues have been reflected in customers' complaints posted in companies' social network accounts. We uncovered these significant issues by analyzing tweets collected from five major airlines' Twitter accounts. The data revealed that customers' service experience has been related to the whole service package including core services and peripheral services. Customer complaints have been concentrated on the core service category, which includes explicit services, supporting facilities, facilitating goods, facilitating information, and implicit services. Explicit services, supporting facilities, and facilitating information have been the first three most complained categories. Specifically, what frustrated customers most were flight cancellation, delay and rescheduling, poor aircraft conditions, and problems with airline online services. We provided our suggestions on how to develop symmetric protocols to improve services in these aspects.

The second research question asked what missing links might be embedded in airline services that have caused the mismatch between organizations' intent and customers' expectation. Our analysis revealed that while airlines have favored cost cutting strategy, customers have expected for best value (i.e., low cost with high service quality). Thus, airlines need to make more efforts to balance the tradeoff between cost and service quality. We also found that airlines' process-centered approach has not met customers' preference over the customer-centered approach. Innovative service process design is needed to accommodate customers' needs. Furthermore, emerged themes from the data revealed that the lack of information and unsynchronized communication in service processes couldn't meet customers' real time information and communication needs. Airlines can adapt approaches in supply chain synchronization to improve their service operations.

Using social networks to improve service operations is an innovative strategy that has gained momentum. As technology advances, customers increasingly express their dissatisfaction in real time and demand immediate attention and assistance from service agents. We used real data from airlines' Twitter accounts to uncover what matters most to customers. Real data captures the critical points that customers complain about at the moments that service failures happen. Our findings have added more depth to prior research on airline service package by uncovering the specific service elements prone to errors, rather than limit to end-of-process performance measures. Our findings can help airlines develop a systematic response approach, which uses a protocol to handle customer complaints in a prompt and consistent way. The possible missing links embedded in airlines' service package that cause mismatches between organizations' intent and customers' needs can provide insights for airlines to redesign their processes to improve

service quality. Other industries may apply the insights we gained in this paper and further explore using social networks on service operations effectively.

We acknowledge that not everyone uses social networks. Pew Research Center's (2012) latest report revealed that as of August 2012, 48% of online adults on a typical day use social networks. It was 43% in August 2011 and just 27% in April 2009 (Pew Research Center, 2012). The communication habits and feeling of urgency of service issues of social network users might be different from non-social network users, which may lead to the possibility that the issues that we identified using social networks do not necessary reflect the issues experienced by all the customers. However, we do see an increasing percentage of people using social networks, which is highly correlated to the growth of smartphone adoption. With the popularity of smart phones, businesses awareness of service operations in social networks, and the promptness of complaining and receiving responses, we expect more and more customers and businesses to utilize social networks to communicate with each other on service improvement.

Another limitation of this study is its applicability to other industries. Although the potential of social networks on improving service operations has been noticed in various industries, each industry may have its own challenges. For example, the banking industry faces more challenges when using social network to handle customer complaints. Under many circumstances, customers need to provide their confidential personal information so that the agents can provide help, which is hard to achieve on social networks due to security. Further study is needed to gain understanding on how other service organizations use social network to facilitate service process design, innovation, or service recovery.

Additionally, although companies have started using social networks to improve their service operations, customers have concerns over their motivation and the effectiveness of this approach. The media coverage that reported airlines have been using social network approach to assist their customers has generated a fair amount of customer comments (Credeur, 2010). Surprisingly, except for one positive comment, a majority of the customers thought that this move is a public relation stunt, rather than an innovative solution for service recovery. Future research is needed to examine the effectiveness of the social network strategy and to explore the critical factors that affect the successful execution of this approach.

Furthermore, organizations using social networks as an additional customer service channel face internal challenges. Two levels of customer services are created for social network users and for those who do not use social networks, when social network agents offer customers quick fixes, even waiving rules at some instances. How to reorganize various customer service channels effectively and efficiently within organizations to provide consistent high quality service is a question that organizations need to address. Investigating and examining this issue is an intriguing further research direction.

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Run H. Niu is an Assistant Professor of Operations Management at Webster University. She received her Ph.D. degree in Management Science from the University. Her research interests include joint decision problems on the interfaces of operations and marketing, power in supply chain management, business applications in social networks and virtual worlds, and referral rewards management in retailing. She has published in *Decision Support Systems, European Journal of Marketing, Asian Pacific Journal of Operations Research, Information System and e-Business Management Journal,* and others.

Ying Fan is an Assistant Professor of Operations Management at University of Colorado, Colorado Springs. She received her Ph.D. in operations management from Ivey School of Business, University of Western Ontario, Canada. Her current research interests include service operations, service recovery strategies and emergency response operations. She has published in the *Journal of Supply Chain Management, Proceedings of Decision Sciences Institute annual conferences, proceeding of Production and Operations Management Society annual conferences*, and others.