Many firms have recently adopted virtual channels, based most notably on the Internet and the phone, to complement the delivery of services to their customers by their existing physical facilities. The success of such multichannel (MC) strategies relies on the alignment of service design decisions – namely those concerning the allocation of service activities to virtual channels – with customers’ MC behavior. While prior studies have looked at the intensity with which customers use virtual channels, they have not addressed virtual channel use for different types of service activities.

In our study, we investigate whether customers’ use of virtual channels for MC services varies with the type of service activities they engage in, and if so, in what way. In doing so, we address two objectives. First, we investigate the impact of accessibility to the physical channel on the degree of use of virtual channels (Internet and phone, aggregated) for different types of activities. Second, we look at channel preferences (Internet vs. phone) for different types of activities when customers do resort to virtual channels to conduct activities.

To address our objectives, we develop and test hypotheses regarding customers’ use of virtual channels based on the match between activity attributes (complexity and volume) and channel attributes (access efficiency, interface efficiency, interface richness). Using data from a MC bank, we find that the impact of accessibility to physical channels (specifically, customer distance) on customers’ use of virtual channels, as well as the relative use of Internet versus phone, depend on the type of activities.

Research Category: Service Networks and Value Chains, Service Experience and Co-creation, Service and Technology

Sousa, R.; Amorim, M.; Rabinovich, E.; Sodero, A. “Customer Use of Virtual Channels in Multichannel Services: Does Type of Activity Matter?” Working Paper

(RUI SOUSA, MARLENE AMORIM, ELLIOT RABINOVICH, ANNIBAL C. SODERO)
In recent years, firms in high-technology supply chains have established internet-based electronic linkages with their trading partners. As a result, they have improved their ability to coordinate and synchronize shared business processes by using more complete, accurate, and timely information. These electronic linkages are based on open-standard interorganizational information systems (OSIOS), which are fundamentally different from traditional electronic data interchanges. OSIOS capture not only the technical specifications for data interchange but also the sequential steps for the execution of shared business processes. Because OSIOS are still at an early diffusion stage, it remains unclear why firms would assimilate such an innovation and whether assimilation provides firms any benefits. In this research, we develop a framework grounded on the economics of standards, institutional theory, and strategic interorganizational information systems literatures to investigate the drivers and outcomes of OSIOS assimilation in a focused context. In order to test our hypotheses based on this framework, we used data from a high-technology supply chain and employed econometrics techniques. We found that both competition asymmetry across supply chain echelons and OSIOS assimilation within supply chain echelons predict individual firms' OSIOS assimilation. The results also suggest that firms' supply chain dominance is both a driver and an outcome of OSIOS assimilation, highlighting a mutually reinforcing process. In addition, our study reveals boundary conditions of the hypothesized relationships. The use of multiple theoretical perspectives, a unique dataset, and innovative statistical techniques to investigate OSIOS assimilation in high-technology supply chains contributes to the body of knowledge in both the supply chain management and management of information systems disciplines.

Research Category: Service Networks and Value Chains, Service and Technology


(ANNIBAL SODERO, ELLIOT RABINOVICH, RAJIV SINHA)
Inventory record inaccuracy (IRI) challenges multichannel retailers in fulfilling both brick-and-mortar and direct channel demands from their distribution centers. The nature and damaging effects of IRI largely go unnoticed because retailers assume daily IRI remains stable over time within the replenishment cycle. In reality, levels of IRI can change every day. This research uses data collected daily from a multichannel retailer to ground a discrete-event simulation that tests how daily IRI variation impacts operational performance. Our empirical data challenges extant assumptions regarding the characteristics of IRI. In addition, our simulation results reveal that daily IRI variation has a paradoxical effect: it increases inventory levels while decreasing service levels. We also reveal important aspects of this problem — that channels are impacted differently and that inventory policies can exacerbate the problem. Our findings show that assumptions and practices that ignore daily IRI variation need revising. For managers, we demonstrate how periods of multi-day counting help assess their daily IRI variation and indicate what the causes may be.

Research Category: Service Networks and Value Chains, Service and Technology


(THOMAS KULL, MARK BARRATT, ANNIBAL SODERO, ELLIOT RABINOVICH)
Unlike in a traditional store environment where inventory is directly visible to customers, Internet retailers have more flexibility in exposing consumers to inventory information. It is common for online sellers to provide only binary information to shoppers, indicating a product is either “in stock” or not. In this paper, we investigate whether an online retailer which optimally prices its product should divulge (precisely) its stocking level, or merely indicate whether the product is in stock. By appropriately designing an inventory information disclosure policy, an online retailer may potentially leverage consumers’ heterogeneous sensitivity to stock-out risk and thus enhance profits.

We employ a two period analytic model to address an online retailer’s contrasting inventory disclosure policy options. In the second period we assume the firm attempts to clear out any remaining stock at cost and therefore the firm must earn its profits during the primary (first) selling period. We permit two types of consumers: one segment that rationally infers availability when the firm does not divulge its stock level, and the others who rely on some prior belief distribution regarding inventory. If the firm’s stock level is either shown or believed to be sufficiently high, then consumers may strategically defer their purchase to the second period, however at the risk of potentially not obtaining the product. Intrinsic to the model is the assumption that consumers’ purchase decisions are sensitive to stocking quantities, which we support using data collected from an online book sales website (StrandBooks.com) that divulges stock levels to its customers.

Using the analytic model, we derive the threshold stocking level at which the inventory sharing and masking policies and the corresponding optimal prices yield equivalent expected profits. Below that level, sharing is optimal; above that level, masking is optimal. We also show that, if the inventory decision is endogenous then the retailer should optimally set and disclose a low stock level to ensure a first period sell-out. This structure suggests to managers the potential for increasing profits by tailoring disclosure tactics to a product’s stocking level. To explore this issue further, we collected data from Amazon.com, which provides a richer (real-time, multi-product) context for studying the impact of inventory information on sales. Amazon follows a hybrid disclosure policy that masks inventory information at high stock levels but divulges that information at low stock levels. We show that the sales rate under disclosure tends to be higher than under masking, thus demonstrating that Amazon is, at least in many cases, able to enhance sales rates by selectively opting to disclose detailed inventory information only when inventories are sufficiently low.

Research Category: Service Networks and Value Chains, Service Experience and Co-creation, Service and Technology


(TOLGA AYDINLIYIM, MICHAEL PANGBURN, ELLIOT RABINOVICH, MIN CHOI)
Pressure continues to build on internet retailers to squeeze out inefficiencies from their day to day operations. One major source of such inefficiencies is product returns. Indeed, product returns in Internet retailing have been shown to be, on average, as high as 22% of sales. Yet, most retailers accept them as a necessary cost of doing business. This is not surprising since many retailers do not have a clear understanding of the causes of product returns. While it is known that return policies of retailers, along with product attributes, are two important factors related to product return incidents, little is known about which operational aspects of the online retail transaction make such a purchase more return-prone.

In the current study, we seek to address this issue. We use a large data set of customer purchases and returns to identify how process attributes in physical distribution service (PDS) influence product returns. The first attribute involves the disclosure of scarcity conditions in inventory availability by retailers to consumers. Our results show that orders in which items are sold after these conditions are revealed to shoppers have a higher likelihood of being returned than orders in which these conditions are not revealed. While prior research has argued that inventory scarcity perceptions have a powerful effect on purchases, our findings suggest that they also have a substantial effect on the likelihood of these purchases being returned.

The second attribute involves the reliability in the delivery of orders to consumers. We find that the likelihood of orders being returned depends on the consistency between retailer promises of timeliness in the delivery of orders and the actual delivery performance of the orders. Moreover, we find that the effect that consistency in the delivery has in the likelihood of returns is stronger for orders that involve promises for expedited delivery than for orders with less expeditious promises. That is, although the occurrence of returns depends on the delays in the delivery of orders to consumers relative to the initial promises made by the retailers, this effect is more notable for orders that involve promises of fast delivery.

Research Category: Service Networks and Value Chains, Service Experience and Co-creation, Service and Technology


(Shashank Rao, Elliot Rabinovich)
Self-Service Operations at Retail Stores: The Role of Inter-Customer Interactions (New)

Mei Li*, Lehigh University
Thomas Y. Choi, Arizona State University
Elliot Rabinovich, Arizona State University
Aaron Crawford, Arizona State University

Inter-customer interactions are important to the operation of self-services in retail settings. More specifically, when self-service terminals are used as part of customers’ checkout processes in retail operations without the explicit involvement of retailers as the direct service providers, inter-customer interactions become a significant managerial issue. In this paper, we examine the impact of inter-customer interactions at retail self-service terminals on customers’ service quality perceptions and repeat purchase intentions at retail stores. We conduct a scenario-based experimental design (N=674) using a 2X2 factorial design in which inter-customer interactions are divided into “positive” versus “negative” and occur during the “waiting” or during the actual “transaction” stages of self-services at a retail store. We use attribution theory to develop the hypotheses. The results demonstrate that, through their interactions, fellow customers can exert influences on a focal customer’s quality perceptions and repeat purchasing intentions toward a retail store. Further, these influences were impacted by how customers attribute blame or assign responsibility toward the retail store. Service operations managers should leverage these interactions by designing into self-service settings the capacities and interfaces that are best suited for customers’ co-production of their self-service experiences.

Research Category: Service Networks and Value Chains, Service Experience and Co-creation, Service and Technology


(Mei Li, Thomas Choi, Elliot Rabinovich, Aaron Crawford)
SHAREHOLDER VALUE IMPLICATIONS OF SERVICE FAILURES IN TRIADS: THE CASE OF CUSTOMER INFORMATION SECURITY BREACHES (NEW)

Sachin Modi, McGill University
Michael A. Wiles, Arizona State University
Saurabh Mishra, University of Toledo

The rise in service outsourcing in recent years, despite its many advantages, has also exposed buyer firms to unique challenges. Particularly, inclusion of a third party front-end service provider to form a service triad can lead to a weakening in the position of the buyer firm. This becomes a significant concern in the face of service failures at front-end service providers, elevating the ex-post relational and operational costs of buyer firms and placing a downward pressure on their shareholder value. In this research, the authors investigate the shareholder value losses of one such type of unexpected service failure, i.e., customer information security breaches, and highlight how these losses to the buyer firms get magnified when the front-end service provider in a triad compromises the information. The authors also evaluate two critical resource positions of buyer firms, i.e., employee productivity and financial leverage, which can signal their ability to attenuate the negative fallout of information security breaches in service triads, and thus influence the shareholder value implications of such service failures. The results based on an event-study methodology provide important implications.

Research Category: Service Networks and Value Chains

This is a working paper that is currently under review.

(SACHIN MODI, MICHAEL A. WILES, AND SAURABH MISHRA)
Fundamental to emerging theories of value cocreation is a developing awareness that value emerges in networks. This has awakened researchers, policy makers, businesses, and institutions to the realization that value emerges in a value constellation, and that the notion of value extends beyond rough monetary measures to incorporate elements such as health, well-being, and quality of life. In response to this new reality, this paper conceives of cocreated value in a health service network as quality of life, health and well-being. Based upon a typology of value-creating interaction styles in a core service, a model of relationships among entities in a service network is developed. Subsequently, research questions are developed regarding the structural properties and relationship qualities of networks that advance theory of value cocreation. These effects are exemplified in a health care service network to illustrate how relationships in the model impact the health and well-being of customers. Implications for network entities including managers of health systems and policy makers include ways to enhance physician-patient communication to foster a balanced, mutualistic relationship that optimizes cocreated value.

Research Category: Service Networks and Value Chains

This is a working paper that is currently under review.

(Hulda G. Black, Andrew S. Gallan)
A MULTIDISCIPLINARY DESIGN MODEL FOR NEW SERVICE OFFERING TRANSFERS AND INTERNAL INTEGRATION IN RETAIL CHAIN SERVICES: A RESEARCH AGENDA*

Aleda V. Roth, Clemson University
Jeff Shockley, Radford University

This article examines the question: how can retail service chains instantiate new service offerings throughout their organizational design systems? We address a central theme in new service innovation research: new service offerings and concepts will often require sticky information transfer of new knowledge gained externally from customers and competitors and internally from intra-firm employees, systems, and business entities. We develop a multidisciplinary, strategic design model that is useful for integrating and sharing knowledge across retail chain stores (RCS).

Illustrate effective new service offering transfer for effective execution at the store level.

Introduce the 3S’s for service effectiveness measurement: 1) standards; 2) systems and 3) sensing mechanisms.

Conclude with research agenda for advancing scholarly research in retail chain services.

Research Category: Service Networks and Value Chains

* Roth, A.V. and J. Shockley “A Multidisciplinary Design Model for New Service Offering Transfers and Internal Integration in Retail Chain Services” MIS Review (Special Issue on Service Science), forthcoming 2010.

(ALEDA V. ROTH, JEFF SHOCKLEY)
We investigate the links among markups, service quality, and product attributes across customer, Internet-retailer, and wholesaler echelons. Little is known about how retail markups, in particular, are related to service quality and product attributes. To examine this issue, we developed a model of Internet retail profitability that separates revenues and costs related to sales transactions from other profit sources. This framework led us to synthesize studies that have focused on service quality dimensions in the Internet retailing space. Subsequently, we developed a critical-event study based on a profit model and the synthesis of service-quality dimensions in order to delineate service aspects that retailers need to address buyers’ utility. Finally, we collected data from purchases across retailers in order to isolate markup-service quality relationships along our delineated service characteristics. We find that high markups are associated with superior performance by Internet retailers across several service quality dimensions (a service premium effect).

Research Categories: Service Networks and Value Chains

* Production and Operations Management 17, No. 3, pp. 320-337.
COORDINATION STRATEGIES IN A SAAS SUPPLY CHAIN

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   Hsing K. Cheng, University of Florida
   Subhajyoti Bandyopadhyay, University of Florida

The computing industry is gradually evolving to cater to the demand for software-as-a-service (SaaS). Two core competencies that have emerged over the past few years are that of the ASP and the AIP. The arrangements between them result in system dynamics that is typical in supply chain networks. We examine the performance of a SaaS setup under different coordination strategies between these two players. Our analysis indicates that coordination between the monopoly ASP and the AIP can result in an outcome with the same overall surplus as that can be achieved by a central planner. Even though the players have an incentive to deviate, it is possible to create the right incentives so that the economically efficient outcome is also the Nash equilibrium. The results of the analysis have significant implications for the coordination strategies for providers in the burgeoning business model of delivering software services over the Internet.

Research Category: Service Networks and Value Chains

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(HALUK DEMIRKAN, HSING K. CHENG, SUBHAJYOTI BANDYOPADHYAY)
Cloud services have become an emerging solution for organizations striving to address today’s need for agility, but little research has addressed transitioning multiple, collaborating organizations to what can be referred to as a “value-network cloud.” We know that organizations adopting cloud services to execute business processes must concomitantly reconfigure their security solutions for their integrated intra- and inter-organizational collaborations. We address the question, “What is needed to make it possible for an entire value-network to take secure, collaborative business process executions to the cloud?” Future value-network cloud solutions will require completely new security approaches that will leverage contracted brokering solutions operating as part of the cloud solution. We view value-network cloud security service provisioning as a bundle decision characterized by a mix of communication patterns relevant to intra- and inter-enterprise collaboration. We propose a cloud service broker model – using semantics and SLA based middleware – to serve as a trusted interface between the enterprise, cloud service providers and other organizations collaborating in a value-network. The approach enables IT governance for value-network cloud services. The architectural requirements adapt design principles for infrastructure management tailored from approaches to how business cartels historically conducted secure business dealings.

Research Category: **Service Networks and Value Chains**

* Corresponding Author


(HALUK DEMIRKAN, MICHAEL GOUL)
THE SERVICE NETWORK EXPERIENCE: CUSTOMER EVALUATIONS OF PERFORMANCE AND BRAND IMAGE

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Mary Jo Bitner, Arizona State University
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In complex service situations such as healthcare, telecommunications, B2B service solutions, and hospitality, a customer’s service experience results from interactions with a set of service providers, all of whom deliver key components of the service solution. Such configurations of customer-facing firms that collectively co-produce a total service experience for customers are conceptualized as “service networks.” This research establishes the service network as an important unit of analysis in service research.

The results of two experiments show that the images and associations resulting from experiences with providers in the network can shape customer evaluations of other members of the network, in particular, the brand image of a focal firm. By explicating the nature of relationships between the firms within a particular type of service network from the customer’s point of view, this research provides a fresh operational perspective and practical implications for managing customer experiences, network relationships, and service brand strategies.

Research Categories: Service Networks and Value Chains

Working paper; research sponsored by the CSL

(MARY JO BITNER, AMY L. OSTROM, FELICIA N. MORGAN)
Internet retailing offers merchants limitless shelf space. This has led experts to highlight the existence of a “long tail” of offerings and assert that the future of online business is “selling less of more.” However, it is difficult for retailers to offer a large scope of products without having to handle large amounts of returns from customers. This is because customers can and do get overwhelmed by product variety. We shed light on this issue through an assessment of data from sales and returns of almost 7,000 products in a product category. We find that retailers can benefit from expanding the inventories’ scope to generate sales from a diversity of products. However, the success of this strategy will depend on managing recurrent execution and product failures. Furthermore, the gains that this strategy will bring to retailers will be bound by product attributes such as prices, size, and market longevity.

Research Categories: Service Networks and Value Chains

*Working paper

(ELLIO'T RABINOVICH, RAJIV SINHA, TIMOTHY LASETER)