INSIGHTS INTO SERVICE OPERATIONS MANAGEMENT: A RESEARCH AGENDA

ALEDA V. ROTH AND LARRY J. MENOR

The Kenan-Flagler Business School, The University of North Carolina at Chapel Hill, Campus Box 3490, McColl Building, Chapel Hill, NC 27599-3490
Richard Ivey School of Business, The University of Western Ontario, 1151 Richmond Street North, London, Ontario N6A 3K7

This paper offers insights regarding an agenda for service operations management (SOM) research. First, we motivate the need for an SOM research agenda. Second, we offer a research framework that paints a broad-based picture of key architectural elements in the SOM research landscape. The framework builds upon prior and emerging research for designing, delivering and evaluating services. Third, in order to stimulate future research in SOM, we use this framework to hone in on five understudied and emerging research themes that underpin our proposed SOM research agenda.
(SERVICE OPERATIONS MANAGEMENT; SERVICE STRATEGY; SERVICE MANAGEMENT RESEARCH)

1. Introduction

This paper offers insights regarding a research agenda for service operations management (SOM). First, we motivate the need for a SOM agenda. The urgency for SOM research is driven by the needs of the rapidly growing and evolving service sector of our national economy and the dearth of related operations management research. Second, we offer a conceptual framework that paints a broad-based picture of key architectural elements in the SOM research landscape. The framework builds upon prior and emerging research for designing, delivering and evaluating services. Finally, in order to stimulate future research in SOM, we use our framework to build a research agenda, honing in on understudied and emerging areas that require rigorous academic investigation.

Advancing the management principles, theory development, and research methods in SOM is of rising economic importance. Conventional wisdom indicates that technological progress in information and communications technology has hastened the pace of change in the service arena. Consider, for example, the rapidity of change over the past decade due to the effect of the Internet on business models, service products and processes; the globalization of services; the heterogeneity and complexity of customers' demands in multiple channels; and the entry of nontraditional competitors. The employment impact of technological change in industrialized countries is great, reflecting an explosive rise in services over the past century. With at least two-thirds of the labor force of industrialized economies employed in services, this sector now accounts for the majority of their GDPs (Fitzsimmons and Fitzsimmons, 2004; Oliveira et al., 2003). Sampson (1997) projected that 90 percent of business school graduates will work in service-related settings.

Deepening concerns about how best to design and manage exemplar services have led to calls for more scholarly research on the subject using a production and operations management (POM) lens. Along this line, a number of POM scholars have continued to stress that SOM is an intriguing management area that requires ongoing investigation (Nie and Kellogg, 1999; Johnston, 1999; Meredith and Roth, 1998). Indeed, the Production and Operations Management Society (POMS) recently instituted a new POMS College for Services to strengthen the focus on services among its academic community membership (see www.poms.org). Further, *Production and Operations Management* has long been committed to the study of services (Singhal, 1992). *Production and Operations Management* (Fall 1999), *Management Science* (September 1999 and November 1995), and the *Journal of Operations Management* (April 2002) have published issues devoted to services research. Some of these efforts have highlighted specific industries like financial services or special topics such as service design. Others have focused more generally on service management and the integration of service marketing and service operations.

This recognition of the importance of service management to economic and business success is being echoed in other disciplines as well. For example, management scholars today are clearly interested in services (e.g., Bowen and Ford, 2002). Take, for example, the recent publication of an *Academy of Management Executive* issue (November 2002) that addresses the enhancement of services effectiveness. Similarly, marketing scholars have made a distinctive contribution to the study of services, resulting in an entire area of research labeled "services marketing" (Rust et al., 2000; Swartz and Iacobucci, 2000; Berry and Parasuraman, 1993; Lovelock, 1991).

1.1. *SOM Research Dilemma*

Despite the long-standing general views regarding the importance of service management, the penetration of "services" in POM journals remains surprisingly low, especially relative to manufacturing. While new ideas and concepts in service management have been slowly gaining acceptance, the overall POM literature base remains sparse and highly fragmented. In a review of 1,754 articles in seven journals with a "true" POM focus, Pannirselvam et al. (1999) reported that those pertaining to services represented only 2.71 percent of all topics published from 1992–1997. Surprisingly, the percentage of articles on services actually appeared to diminish over the study period, from 2.79 percent in 1992–1993 to 1.92 percent in 1996–1997. These findings are consistent with those of Nie and Kellogg (1999), who reported that the general research and teaching focus of most POM academics is manufacturing-oriented.

Our examination of the extant literature provides some plausible clues that should be of concern for the advancement of scholarly research in SOM. These factors are not mutually exclusive. First, the traditional POM journals may be less apt to be receptive to SOM research. Because SOM is highly amenable to interdisciplinary inquiry, non-POM focused journals may provide more publication options. Furthermore, niche outlets such as *Journal of Service Research* and *International Journal of Service Industry Management* are popular choices for SOM scholars.

Second, SOM research, in contrast to manufacturing, tends to focus on different problem types and uses different methodologies than those that are typically found in most POM doctoral curricula. Many service management problems are fuzzy and unstructured; are multidimensional and complex; and are less conducive to normative, analytical modeling. The current POM paradigmatic outlook forces research into more conventional conceptual and methodological mindsets. Thus, it may be more difficult for POM scholars, who are less familiar with SOM research, to evaluate publication quality and contribution.

Third, there is continued debate among POM scholars, who question the legitimacy of SOM as a subdiscipline within the field. Nie and Kellogg (1999, p. 352) reported that "manufacturing-oriented academicians appear to be unwilling to fully support the fact that service OM must be studied in different ways, using different theories, skills, competencies,

and language." Such convergent thinking can put SOM research into an intellectual straight-jacket. By comparison, SOM research today appears to be in a similar quandary as services marketing was over a decade ago. Fisk et al. (1993, p. 62), in their tracking of the evolution of the services marketing literature, report:

> " . . . relatively few publication outlets enthusiastic about their work, and they confronted a discipline debating whether services marketing was significantly distinctive. Today [1993] service marketing scholars work in a far more receptive environment."

Fourth, even if there was agreement on the legitimacy of SOM, the subdiscipline is highly fragmented and lacks a commonly accepted unifying structure. For example, some POM scholars focus on specific industry sectors such as financial services, hospitality, government, or health care; others apply particular research methods (e.g., queuing theory, case studies, or survey research); and still others address problems pertaining to different types of decision-making (e.g., tactical versus strategic or front-office versus back-office operations).

1.2. *Why an SOM Research "Agenda"?*

Given the imbalance between the economic importance of SOM and the lag in research in traditional POM journals, we feel an urgent need to bridge the gap. The field is at a critical juncture in the evolution of SOM research, and the time is ripe to take stock of the past, assess the present and anticipate the future. Miller and Graham (1981, p. 548) contend that:

> "an agenda, however preliminary and tentative, will be of some value in defining the scope and direction of research in the field as a whole and in identifying those niches which some might choose to attack in a concentrated way . . . [and a research agenda can define] a core of shared concerns that will allow members of the P/OM community to maintain their identity even as they extend themselves and their research interests to encompass new problems in a broader context."

Our aim is to build momentum by stimulating new research in services that will not only close the gaps, but will also lead practice.

2. SOM Research Frameworks

In this section, we provide SOM research perspectives that we believe might help loosen the grip of conventional POM paradigms. We recognize that there are a multitude of SOM frameworks in the extant literature, and our intent is not to exhaustively review them. Instead, we go back to operations strategy basics, as depicted in figure 1.
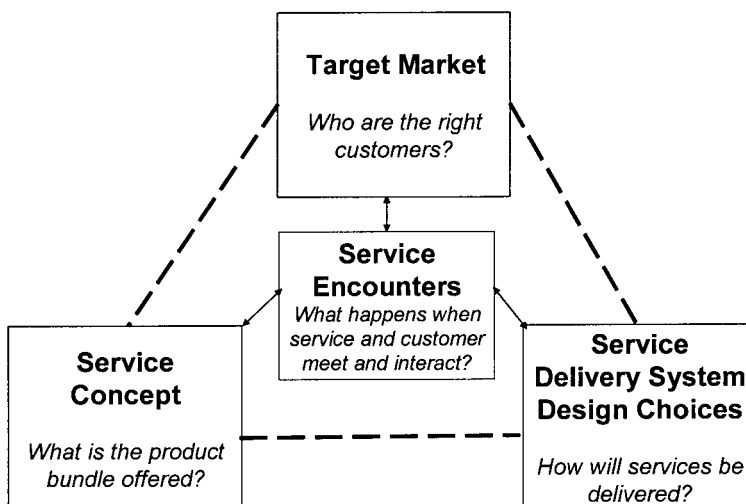

FIGURE 1. The Service Strategy Triad: Target Market, Service Concept and Service Delivery System Design Choices

A common thread in SOM research and practice generally seeks to address a fundamental question: What theoretical and practical insights can be discovered that will enable firms to effectively deploy their operations in order to provide the right offerings to the right customers at the right times? In answering this question, an operations perspective considers the strategic alignment of three factors: 1) the targeted market and customer segments, 2) the notion of a service concept as a complex product bundle (or "offering" to customers), and 3) the service delivery system design.

Taken together, each element in the service strategy triad influences the service encounter (see figure 1). Service encounters are defined as the customer contact points at which the customers meet and interact with the service provider. Referring to these customer touch points with the service, Jan Carlszon, former CEO of Scandinavian Airlines System (SAS), coined the term "moments of truth" (Chase et al., 1998, p. 142). It is at the "moments of truth" that the customers experience the delivered services and form evaluative judgments that influence their overall satisfaction, intentions to repurchase, and loyalty.

Different service concepts and markets require different approaches to the design and management of services (Chase et al., 1998; Schmenner, 1986). Following the evolution of the strategic logic based on operational choices (Fitzsimmons and Fitzsimmons, 2004; Metters et al., 2003; Lovelock and Wright, 1999; Markland et al., 1998; Roth and Jackson, 1995; Schmenner, 1995; Roth and van der Velde, 1991; Heskett et al., 1990; Wheelwright, 1984; and Sasser et al., 1978), and unlike Goldstein et al. (2002), we believe that drawing a clear distinction between *what* and *how* is critical to the advancement of SOM research. Therefore, we make the distinction between the service concept and the service delivery system. This distinction allows us to examine a research "architecture" framework that integrates many of the important design and delivery issues that are the basis for effective SOM.

2.1. *Target Markets*

One key question addressed in SOM research pertains to *who* is the target market; i.e., the right customers (see figure 1). Most companies segment their potential customers into groups based on common attributes or characteristics. Traditionally, segments are defined with an emphasis on demographic characteristics, such as age, income, and education. Practitioners in retail banking, for example, frequently split customers into mass, middle, and upscale market segments. In contrast, SOM scholars tend to segment customers based on operational attributes (e.p.g. degree of customer contact, degree of process labor intensity, and/or customization) (Chase et al. 1998; Schmenner 1995, 1986; Chase and Tansik, 1983; Chase, 1981). Boyer et al. (2002), Heim and Sinha (2002) and Roth (2001) indicate that target market attributes for electronic services typically vary from those used in traditional services. Others hypothesize that more effective services will also emphasize customer psychographics (e.g., how customers behave, think, and feel) for defining potential market segments (Heskett et al. 1990). Pine and Gilmore (1999) take psychographics seemingly to the limits, suggesting that service providers can target customers based on how they experience—think and feel about—services in personal ways.

Arguably, understanding the target markets is essential for evaluating the relevance of the research insights and the efficacy of service standards and performance outcomes. The choice of target markets guides a wide range of inputs in SOM research and practice—from the parameter inputs for individual customer utility functions for the service, to positioning the service products and the delivery systems against competitors (see Metters et al., 2003; Pullman et al., 2001). Understanding target markets and their requirements is equally important for new service and product development (Heskett et al., 1990).

2.2. *Service Concept*

One of the first steps in designing a new service or assessing its effectiveness is to consider all of the elements of the delivered service from the perspective of both the buyer and the seller. The service offering contains a mix of tangible and intangible elements. To capture these notions in their seminal book, Sasser et al. (1978, p. 14) coined the term "service concept,"[1] which they defined as the total bundle of goods and services "sold to the customer and the relative importance of each component to the customer." Originally, the total service package consisted of three elements depicted in figure 2: 1) facilitating goods, 2) the explicit services; and 3) implicit services. Since then, the service concept elements have been refined and expanded conceptually by various authors (Fitzsimmons and Fitzsimmons, 2004; Goldstein et al., 2002; Roth and van der Velde, 1991; Heskett et al., 1990; Collier, 1987; Heskett, 1986). We distinguish between facilitating goods and facilitating information.

In this paper, the service concept is operationally defined as a portfolio of core and peripheral service elements (see figure 2). The core service comprises five elements: 1) the *supporting facilities,* which are the physical and structural resources that must be in place for the service to be delivered; 2) the *facilitating goods* that comprise the materials, supplies, and merchandise that are used or consumed in the service delivery process; 3) the *facilitating information* that supports or enhances the execution of the explicit services; 4) the *explicit services* that represent the customer's experiential or sensual benefits; and 5) the *implicit services,* which are characterized by psychological benefits or more tacit aspects of the service that customers may sense only vaguely.

Elements	Examples
Core Service	
• Supporting facilities	Facilities layout, décor, support technology and equipment, branch network, kiosks, roller coasters
• Facilitating goods (physical items)	Food, ATM cards, forms, receipts, checkbook, golf clubs
• Facilitating information	Schedules, fee structures, data, medical records, web page design, diagnostics
• Explicit services (experiential/sensual)	Satisfy hunger, transportation, surgery, "transactions," entertainment
• Implicit services (psychological benefits)	Comfort, status, convenience well-being, delight
Peripheral Services	Services/facilities that supplement or "surround" the core service [e.g., valet parking for hospital services, shopping at terminals for air transportation services]

Adapted from Sasser et al. (1978), Fitzsimmons and Fitzsimmons (2004), and Lovelock and Wright (1999).

FIGURE 2. Total Service Concept: Elements and Examples

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[1] The terms "service package," "service or product bundle," and "service offerings" have been used to describe the service concept. See Fitzsimmons and Fitzsimmons (2004), Chase et al. (1998), Lovelock and Wright (1999), and Heskett et al. (1990). We use these terms interchangeably in describing the elements in figure types.

Peripheral services are supplementary to the core service; they provide additional benefits offered to customers that enhance value and, frequently, help to differentiate the core services. For example, airline travelers using the Pittsburgh or London airports have access to mini-shopping malls. Shopping is a peripheral service that potentially adds value to the overall travel experience. In this example, the explicit service is air transportation between two or more destinations. Among the implicit services are passengers' feelings of safety and comfort. Facilitating goods and information include drinks served to passengers on board the aircraft and information provided to them about on-time arrival, respectively, while the design and decor of the airline terminals and aircraft are aspects of the supporting facilities.

The challenge of delivering a service concept that is aligned with the needs and expectations of a specific target market is a long-standing concern for SOM scholars; however, the discussion of just what constitutes the total service concept and its implications for SOM research and practice continues to be debated. While the service concept plays a significant role in competitive services and market positioning, we found little precision in its definition in the extant literature, and no measurement scales that capture the elements of the service concept construct. We agree with Goldstein et al. (2002, p. 121) that the service concept may be the missing link in service design research:

> "But while the term [service concept] is used frequently in the service design and new service development literature, surprisingly little has been written about the service concept itself and its important role in service design and development."

The total service concept that we operationally define in this paper is a multidimensional construct that embodies the totality of the service elements that are either important to target customers or are purchased by them. Following Mintzberg's (1978) notions in order to further research and guide practice, it is also important to distinguish between "intended" (or planned) and "realized" (or actual) service concept constructs. From the provider's perspective, the *intended* service concept is the product bundle that is planned to be offered to targeted customer segments. The service concept that is actually perceived in the mind of the customer or purchased by the customer is the *realized* service concept (e.g., the actual service package of elements delivered). The conceptual linkage between the service concept and service delivery system design architecture presented in the next section is given by Sasser et al. (1978, p. 14):

> "A primary reason for defining the service product in terms of a total service concept is the role the process plays in creating the product. In purchasing a service, the consumer interacts with the workforce, equipment, and physical environment that create the service. The process itself is, therefore, one dimension of the product. In contrast, the manufacturing process is isolated from the consumer and has an impact on the consumer only through what effect it has on the product. The elements of the manufacturing process are designed for the effective production of the physical good that is its output. The labor, equipment, and facilities are functionally designed with the cost and quality of the product being the primary criteria for evaluating how effectively these resources are utilized. In contrast, the service delivery system must be designed with the presence of the consumer in mind."

2.3. *Architecture for Service Delivery Systems*

Hayes (2000) noted the need for an architecture, or organizing framework, for POM. Similarly, an architecture is required for SOM. The service delivery systems architecture offered in figure 3 bridges traditional POM topics (e.g., operation's choices such as capacity management and process measurement and improvement) with traditional SOM areas of inquiry (e.g., service quality and service encounters). It bridges the content of services strategy as defined by the portfolio of strategic design choices and the tactics associated with execution and the customers' perceived value of their service encounters. We also use it to frame the contributions of prior literature, and subsequently to articulate areas in which future SOM research opportunities exist.

Strategic Design Choices

"Structural"

- *Facilities and Layout*
- *Technology and Equipment*
- *Aggregate Capacity Planning*
- *Service Product-Process Interfaces*

"Infrastructural"

- *People*
- *Policies*
- *Practices*
- *Processes*
- *Performance Systems*

"Integration"

- *Operations Organization and Coordination*
- *Service Supply Chains*
- *Integration Technologies*
- *Learning and Adaptive Mechanisms*

Renewal

Execution

Realized Service Delivery System

Customer Perceived Value of the Total Service Concept
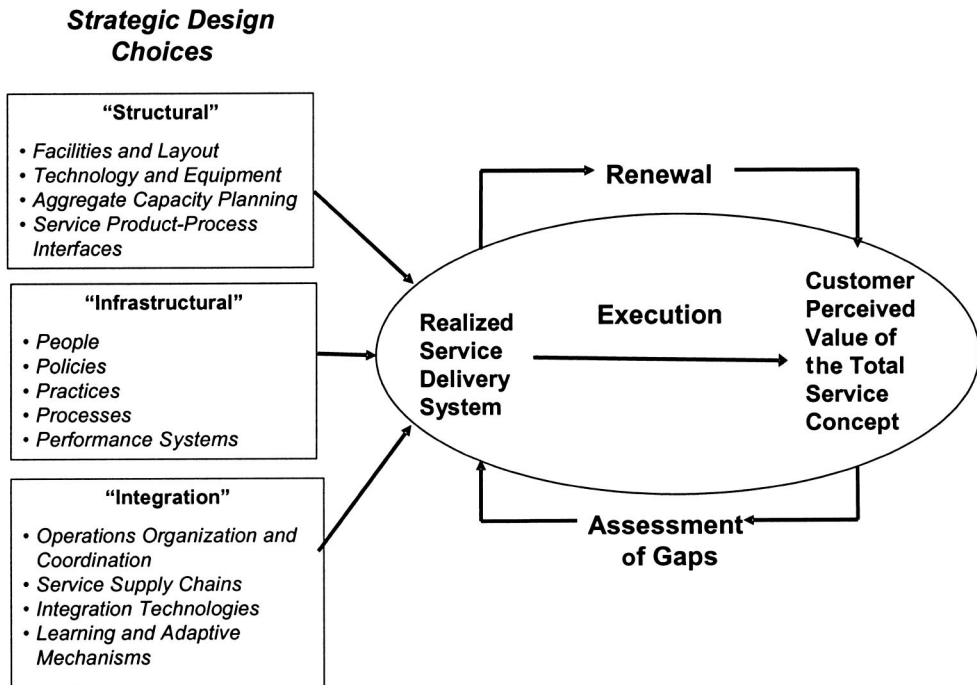
Assessment of Gaps

FIGURE 3. Architecture for Service Delivery Systems

As depicted in figure 3, the SOM research architecture is organized around three major interrelated and dynamic components of service delivery systems: 1) strategic service design choices, 2) service delivery system execution, renewal, and assessment, and 3) customer-perceived value of the total service concept. Building upon prior operations strategy literature, the first major component of the framework focuses on the time-phased portfolio of interrelated strategic design choices that comprise the content of a SOM strategy (Boyer et al., 2002; Menor et al., 2001; Roth et al., 1997; Schmenner, 1995; Roth and Jackson, 1995; Roth and van der Velde, 1991; Heskett et al., 1990; Heskett, 1986). We draw extensively upon the dominant logic in manufacturing strategy in order to build areas of potential intradisciplinary consensus and to establish the legitimacy of SOM as a subdiscipline. The set of structural, infrastructural, and integration design choices depicted in figure 3 represent examples of the content of a SOM strategy that are now described in more detail.

2.3.1. STRUCTURAL CHOICES. Structural design choices involve key decisions concerning the physical aspects of the delivery system. They cover the facilities, technology and equipment, and capacity. Structural decisions must be made concerning the physical design, layout, size, number, and location of "brick and mortar" facilities. In the design for service encounters both the locus and nature of interactions between the service providers and customers must be specified. Central to service delivery system design is the explicit consideration of the nature of customer contacts (e.g., face-to-face, electronically mediated, and back-office support interactions). Thus, structural decisions include those based on the "focus" of customer contact touchpoints, such as the relative allocation of service tasks to the front- and back-rooms and number and types of distribution channels (e.g., traditional stores, kiosks, Internet, and mail).

Structural choices also cover the process technology, equipment, and network configurations for delivering the intended service concept. Here the service strategist is concerned with questions such as: What types of management and delivery technologies should be deployed

and where? How much technology should be developed internally as opposed to either purchased or outsourced? What is the mix of vintage and state-of-the-art technologies? How are the technologies related to requisite core competencies?

Decisions concerning capacity management are also structurally based. Capacity choices must be made to balance supply and demand, including the right mix of permanent versus temporary workers, strategies for managing demand and controlling supply (Crandall and Markland, 1996), and the degree of outsourcing and franchising (Siferd et al., 1992). These capacity choices are especially important in high-customer-contact services because of the inherent characteristics of services: simultaneity of consumption and production, the intangibility and perishability of the offering, and the heterogeneity of the service offerings due to the variation caused by customers in the process. Additional important structural design choices include the aesthetics and appearance of the "brick and mortar," and the ease of navigation and use of the product and process technology.

2.3.2. INFRASTRUCTURAL CHOICES. Infrastructural decisions, the second major area of design choices, are related to the programs, policies, and behavioral aspects of service strategy. Practices require explicit consideration of the tools and techniques employed in making decisions on workforce scheduling, service quality management, and the setting of service standards and performance measurement systems. An empirical examination of critical infrastructural concerns is offered by Roth et al. (1997), who report a service management model based on "value constellations" of practice drivers and results (see figure 4).
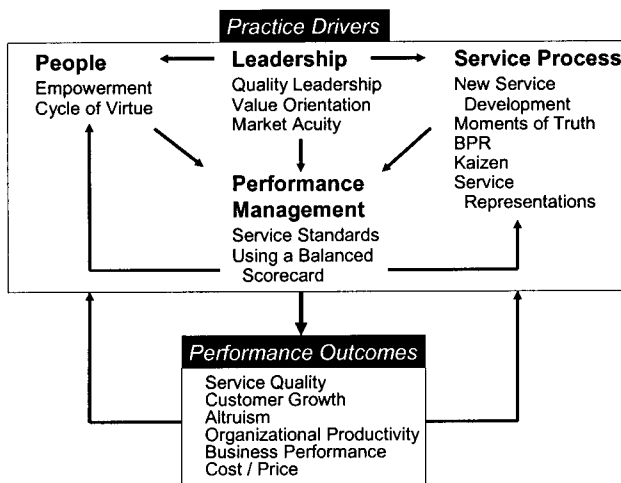

FIGURE 4. Roth-Chase-Voss Model of Practices and Performance

Specific infrastructural issues dealing with people, leadership, service process and performance management constitute a complex set of decisions and are generally long-term in nature. The service strategist is concerned with infrastructural questions such as: How much employee empowerment and discretion should be given? How does the firm create a virtuous cycle regarding its policies for hiring, staffing training and rewarding employees that reinforces the service concept? What values are promoted by the leaders regarding service cultures and customer orientation? What processes will be used to achieve quality, new product development and service, and productivity objectives? How will service failures and recovery be addressed? How will service standards be set and a "balanced scorecard" view of performance be determined?

These infrastructural choices are viewed as synergistic in that they represent strategic "complementarities." Complementarity implies that the value of one infrastructural choice is

enhanced by the presence of other specific choices (Powell and Dent-Micallef, 1997). For example, each of the infrastructural components are critical to the design of the quality of the customer interface (Bitran and Lojo, 1993) and the building of flexibility into the service system (Malhotra and Ritzman, 1994).

2.3.3. INTEGRATION CHOICES. Integration choices revolve around the issues of external integration, internal integration and adaptive mechanisms (see Roth et al. [1996] for health care examples). External integration deals with the service supply chain relationships developed with upstream suppliers and downstream users of the service (Anderson and Morrice, 2000). Internal integration deals with the strategic fit between operational and business performance, between different functional areas, and between structural and infrastructural choices. Adaptive mechanisms focus on the intellectual assets—people, system knowledge, and learning—critical to the delivery of services (Oliveira et al., 2002, Argote, 1999).

Hence, the service strategist is concerned with integration and organizational learning questions such as: What types of relationships must be developed and nurtured with suppliers and customers? How will service networks be established and communications maintained? How will interfaces with other functional areas (e.g., ancillary services like finance) be bridged? How can organizational learning and knowledge transfer be hastened? In general, the portfolio of strategic design choices are collectively important in that they define the boundaries of the service delivery system and determine its potential to produce the intended service concept for target customers.

2.3.4. SERVICE DELIVERY SYSTEM EXECUTION, ASSESSMENT, AND RENEWAL. Besides strategic design choices, the second major architectured component in figure 3 deals with execution, assessment, and renewal factors specific to the service delivery system. Execution applies the multiple features of the delivery system to the service encounter (Chase and Haynes, 2000; Heskett, 1986). Important features include the roles of the provider and customer, the appropriate deployment of service technologies, the size and layout of facilities, the degree and type of customer contacts, and the specification of delivery tasks and treatments to the front and back offices, respectively. Such features form the basis of many of the service typologies in the literature (e.g., Wemmerlöv [1990]; Schmenner [1986]; Huete and Roth [1988]). The specific choices that service designers make with respect to the service concept, delivery practices and procedures, and the service "plant" define the potential effectiveness of the realized service operations strategy (Heskett et al., 1990). These choices are the basis for developing competitive capabilities.

Similar to manufacturing strategy logic (Clark, 1996; Miller and Roth, 1994; Hayes et al., 1988; Skinner, 1978; Stalk et al., 1992), the service design choices must build competitive capabilities that are aligned with the service concept. In services, competitive capabilities— such as consistent quality, convenience, accessibility to channels, customization, and low costs—contribute to the realized service concept (Fitzsimmons and Fitzsimmons, 2004; Roth and van der Velde, 1991). Since there may be many diverse and overlapping definitions for similar constructs, Roth and Jackson (1995, pp. 1721–1722) indicated the need for semantic clarity in scholarly research.

> "Competitive capabilities define what broad-based, heterogeneous factors are critical to business success. Capabilities reflect the firm's actual competitive strength relative to its primary competitors in its target markets. . . Distinctive competencies describe a firm's unique competitive capabilities, which provide an enduring source of competitive advantage (Hill and Jones, 1989)."

Competitive capabilities are used by customers to make choices among competitors. Competitive capabilities can generally be perceived by customers in evaluating the benefits of their overall service offerings and experiences. For example, the Ritz Carlton builds service quality standards into each element of the service concept when making strategic choices, including the physical appearance of the building and grounds, the thread count in

the bed linens, a precise definition of a clean room, the use of guest information at registration to ensure personalization, and the atmosphere created by employees' pleasant greetings to customers, such as "It's my pleasure."

Note that in our architecture, the realized service delivery system capabilities differ from competitive priorities. Competitive priorities are "intended" (planned) capabilities. Even the best intentions or strategic plans do not always become reality upon execution. Because competitive capabilities are often highly interdependent with one another and path-dependent, they are difficult to change in the short term. In fact, changes often require a holistic look at the strategy contents. At the Ritz Carlton hotels, for example, service managers and designers make choices about everything from seemingly minor decisions about the way the bed is turned down to setting up rather elaborate information systems for tracking guest preferences (Hemp, 2002). No details are left to chance; they are embedded in the service strategy contents and the tactics are executed almost flawlessly.

Design choices influence capabilities. Menor et al. (2001) empirically examined how specific technology, capacity, and human resource choices differed for retail banks characterized by their degree of operating agility. Operating agility was defined as the provider's ability to excel simultaneously on service quality, delivery, flexibility, and low cost—primary execution-based competitive capabilities. Similarly, Roth and Jackson (1995) empirically examined the capabilities–service quality–performance triad. They reported the direct and indirect impact that generic operations capabilities such as people and process capabilities, factor productivity, and technology leadership have on service quality and market performance.

When executed, the set of design choices collectively also build core competencies that are often less visible to customers (Leonard-Barton, 1995; Pahalad and Hamel, 1990). Examples of service competence include the coupling of employee knowledge with specific technology choices (e.g., bank tellers who can use the information system for cross-selling products), or the organizational know-how used to create strong relationships among service supply chain partners. Core competencies are related to competitive capabilities. Core competencies constitute the operational realization of a complex pattern of decisions that partially mediate the relationship between strategy and capabilities in the execution of strategy. Without careful attention to strategy, however, these core competencies can become what Leonard-Barton (1995) calls "core rigidities" in services.

In summary, consideration of the strategic design choices is initially a function of the competitive priorities that position the service firm against competitors, its desired target market, and their requisite service concept. The performance outcomes of the realized service delivery system are competitive capabilities, competencies and realized service concept. Execution-based differences between intended and realized delivery systems and gaps between the delivery system and either the target market expectations or service concept may arise. As a result, managers must continually assess and, where necessary, renew the realized service delivery system. A number of common tools such as service blueprints (Shostack, 1987), service quality deployment (Dubé et al., 1999), and service fail-safing (Chase and Stewart, 1994) are useful in making such assessments of the service delivery system. Bitran and Lojo (1993) introduce an analysis framework that ties the service delivery system components to strategic considerations, internal and external operating environments, and other functional strategies (e.g., marketing, human resources, and finance).

Renewing the delivery system is a critical activity as service firms progress towards world-class service delivery (Menor et al., 2001; Roth et al., 1997; Chase and Hayes, 1991). Renewal may also be a critical activity related to issues that arise in dealing with service failures and recovery (Miller et al., 2000; Hays and Hill, 1999) and offering service guarantees (Ostrom and Hart, 2000). Bowen and Lawler (1995) report how Bill Marriott, CEO of Marriott Corp., demands not only that the firm do whatever is necessary to take care of guests but also that employees track, measure, and follow up on how to handle the

situation better the next time. Such efforts to avoid future recovery situations may require changes to the service delivery system.

2.3.5. CUSTOMER-PERCEIVED VALUE OF THE TOTAL SERVICE CONCEPT. The last major component in figure 3 addresses service measurement issues related to the customer-perceived value of the total service concept. Determining the effectiveness of a service poses significant challenges to researchers and to practitioners. At the heart of delivering excellent service is the basing of decisions on what the customer wants, expects and values (Berry, 1995). This requires assessing the realized service concept that customers experience (Ford et al., 2001). Service marketers have recently begun to take a renewed interest in addressing customer expectations and value. For example, Zaltman (2003) questions the sufficiency of understanding only how customers set expectations and make consumption choices. What is also necessary is a complete understanding of why customers value a particular set of offerings or experiences. Such understanding is critical to addressing satisfaction and retention issues (Rust et al., 2000).

Operationally, the management of customer-perceived value has both strategic and tactical importance in SOM research. Heskett et al. (2003) adapted their earlier thinking to explicitly incorporate the value notion. By introducing the strategic value vision, the value profit chain, and customer value equation, Heskett et al. (1997) emphasize the criticality of thinking beyond just the provision of services. Customers purchase results and realized process quality (the way the results are achieved), not just products and services (Roth et al. 1997). These results and process quality define the organization's value concept. Linking this customer value concept to the operating strategy and delivery system remains a challenge for SOM research and practice. Tools such as discrete choice analysis provide a rigorous approach to service operations design and delivery issues based on customer preferences (Pullman et al., 2001; Verma et al., 2001).

3. Research Agenda for SOM

Our research agenda shows that a number of promising opportunities exist for further examination of the research frameworks and architecture described earlier. Specifically, we highlight five critical SOM themes that would benefit from more rigorous research scrutiny. While our coverage of these five research themes is not meant to be exhaustive, it does highlight a number of reasonable avenues for the building of meaningful SOM research.

3.1. *Theme #1: Broadening Service Operations Strategy*

Reviews of service typologies (Cook et al., 1999) and service issues (Chase and Haynes, 2000) identified the numerous efforts of service management scholars to better understand the managerial issues related to the design and delivery of services. Cook et al.'s appendices reveal the wide array of operational issues that have been conceptually examined in the service typology literature. While filled with numerous insights, much of this work has yet to be empirically tested. We note little advancement on Chase's (1996, pp. 300–301) observation about SOM:

> "I see the current period as the 'theory testing/empirical era.' We are gradually moving from developing conceptual frameworks to refining their dimensions and validating them empirically."

Much of the descriptive and explanatory work behind existing service classifications require rigorous testing. To date, only a few of these have been subjected to empirical validation, such as Kellogg and Chase's (1995) and Soteriou and Chase's (1998) extensions to the customer contact model, and Huete and Roth's (1988) and Verma and Boyer's (2000) examination of service process matrices.

Focusing specifically on service operations strategy, a number of prescriptive and com-

peting SOM frameworks are especially deserving of ongoing research. These include the service/value profit chain (Heskett et al., 1994, 2003), and Schmenner's (1995), Boyer et al.'s (2002), and Roth et al.'s (1997) service management models. Besides these competitiveness frameworks, more tactical, operational views of service management such as segmenting, matching, channeling and pricing issues (Chase et al., 1984) and Maister's (1985) "Psychology of Waiting Lines" warrant further investigation.

Levitt (1972) and Thomas (1978) discussed the importance of improving service productivity. However, the evidence suggests that achieving service-sector productivity continues to be a challenge (van Biema and Greenwald, 1997). Given the large range of activities that service providers have to execute and deliver consistently—coupled with increased customer expectations for faster, better, and cheaper services—economic and productivity measurement remain important areas for research. The economics of service delivery systems designs, contingencies and trade-offs are not well-understood. Much of the recent research in service productivity has focused on specific industries such as financial services (Harker and Zenios, 2000; Melnick et al., 2000) or on multisite operations (Metters et al., 1999). As services become more global and outsourced (Apte and Mason, 1995), a greater understanding of service productivity strategies is required.

A number of recent articles have begun to address the calls by Chase (1996) and Johnston (1999) for greater study of service operational competitiveness. These include studies focused on the traditional practices–capabilities–performance relationship (e.g., Menor et al., 2001; Roth and Jackson, 1995) as well as newer topics such as new service development (e.g., Menor et al. 2002; Hill et al., 2002; Froehle et al., 2001; and Fitzsimmons and Fitzsimmons, 2000). However, we believe that more research is needed to broaden our understanding of SOM strategies and performance, especially longitudinal studies that evaluate capabilities and SOM strategy dynamically.

3.2. *Theme* #2: *Redefining Operations Resources*

The resource-based view of the firm (RBV) (Barney, 1991) has supported much of the current service operations strategy thinking (e.g., Menor et al., 2001). However, we believe that a knowledge perspective will soon be emerging in SOM research to advance theory and practice (Roth and Jackson, 1995). As developed in the strategy field, the knowledge-based view (KBV) argues that knowledge is the most critical resource of the firm (Grant, 1996), and that heterogeneous knowledge resources and capabilities among firms are the main determinants of superior performance and sustained competitive advantage (Eisenhardt and Santos, 2002). Intellectual capital embedded in people and systems is critically important in SOM (Oliveira et al., 2002). For example, the success of the service encounter (Czepiel et al., 1985) is based on specific provider expertise in "pure services" and process-embedded knowledge in systems where the customer plays a greater co-producing role.

A bipolar trend is occurring in business today that warrants immediate research attention regarding the study of professional services (Maister, 1993): *outsourcing* of support services— accounting, human resources and call centers—and *shared services,* where internal support services are centralized and shared among business entities. Professional service firms are distinguished by the unique skills and knowledge that are leveraged to provide clients with expertise, experience, and efficient solutions. While the managerial issues and challenges of professional services have been characterized in earlier work (e.g., Schmenner, 1986, 1995), little has been done in the way of studying the array of SOM issues that professional service firms face when supported by advanced technology. For example, Maister (1993) describes three types of client work: Brains, Grey Hair, and Procedure projects. "Brains" work is extremely complex, requiring employee and firm creativity, innovation, and pioneering approaches to generate new solutions to new problems. "Procedure" work, on the other hand, requires more pragmatic effort to address problems that are well-recognized and more familiar. These extremes clearly present

service design and delivery challenges to the firm having to cater to both. To our knowledge, these service design and delivery challenges have yet to be rigorously studied.

3.3. *Theme #3*: *Focus on Customer* "*Experiences*"

Pine and Gilmore (1999) noted the importance of managing the customer experience. Experiences can either be thought of as an outcome of a service or as a distinct economic offering (i.e., a time-based, value-added component beyond the underlying service). Experience design, delivery, and performance measurement issues are numerous, yet little has been published from the SOM perspective. Much of the extant work on experience design is largely based on cognition and sensemaking principles (see Shedroff, 2001). As differences between product and service offerings are decreasing, research into human behavior is becoming more important. Thus, SOM scholars should investigate how specific strategic design choices can influence psychological and consumer lifestyle differentiation.

We believe that service marketing-oriented topics (Fisk et al., 1993), such as service quality (Parasuraman and Zeithaml, 2002), support of brands and customer satisfaction (Szymanski and Henard, 2001), and human resource-oriented topics (Bowen and Ford 2002) are instructive, but also we must be grounded in our roots (Johnson, 1999) in suggesting a research agenda for SOM on experiences. Specifically, more SOM work is needed to study the antecedents of delivering successful experiences. Experiences, by definition, are memorable, individualized, and unique offerings. As a result, there is a great need to understand customer expectations and perceptions in order to personalize the customer's experience (Gupta and Vajic, 2000). SOM research is needed on how service delivery systems can exploit customer differences versus their similarities (White and Trachtenberg, 2003). Especially in a global context, service firms are finding that what sells in the U.S. may have little appeal elsewhere. For example, WPP Group PLC is moving away from "one size doesn't fit all" and is now targeting specific customer groups.

Further, customers play a greater co-producing role in the delivery of experiences (Grove et al., 2000). Operational work on customer contact may yield insight on the better design of experiences. Bitner (1992) uses the metaphor of a *servicescape* to describe the physical environment created by supporting facilities. The influence of servicescapes on the service concept is hypothesized to be profound. Servicescapes, such as the physical structures at Disneyland, influence the behaviors, psychology, and perceptions of both customers and employees, and hence potentially influence the explicit service of "entertainment" and implicit services of "well-being" and customer delight. Yet, little empirical research in SOM exists regarding design choices and contingencies affecting the experiences created by differing servicescapes. Given that more service organizations are beginning to design experiences, SOM research is needed to address, the time is ripe for investigating just how these offerings are to be delivered and monitored.

3.4. *Theme #4*: *Expanding Service Operations Boundaries*

The boundaries for SOM research can be expanded in many ways. First, the functional boundary of SOM research can be further enlarged to cross-functional and extended supply chains. Karmarkar (1996) described service management as a transfunctional research area; it requires study from the perspective of multiple business disciplines. Services provide a natural laboratory for studying the integration of marketing, human resources, and operations (Johnston, 1999). The importance of service research has led to the formation of a distinct subfield of marketing study (Iacobucci, 1998). Distinct service-based research is also emerging in the organizational behavior/management area (e.g., Bowen and Hallowell, 2002; Schneider, 1994), some of which addresses the need for more work looking at the interface between operations and human resources management (cf. Boudreau et al., 2003). However, truly integrative work incorporating an operations perspective is sparse (see Pullman et al., 2001; Roth and van der Velde, 1991).

Second, given the heightened role services play among manufacturers' extended supply offerings, the service and manufacturing distinction deserves additional study. Many manufacturers in maturing industries are experiencing smaller profit margins for their traditional products. Manufacturers, like Honeywell and GE, are finding new profits by bundling services with tangible products (Wise and Baumgartner, 1999). Chase et al. (1992) raised the need to consider the service component of manufacturing, as illustrated by the *service factory.* The research propositions they offered still await empirical testing. Research addressing the service factory would validate Levitt's (1972, p. 41) observation that there "are no such things as service industries. Everybody is in service." Certainly, the increased focus on extended supply chains has significant service components that need to be explored further, whether they are goods- or service-focused. Especially important research topics pertain to how the service concept and strategies play out most effectively among alliance partners; the economics and trade-offs in the positioning of services among supply chain partners; performance measurement; the service components of reverse logistics and sustainability (Corbett and Kleindorfer, 2001) and the service competencies required. Service concepts, in short, are applicable to the manufacturing and supply chain context (Voss, 1992; Heskett, 1986).
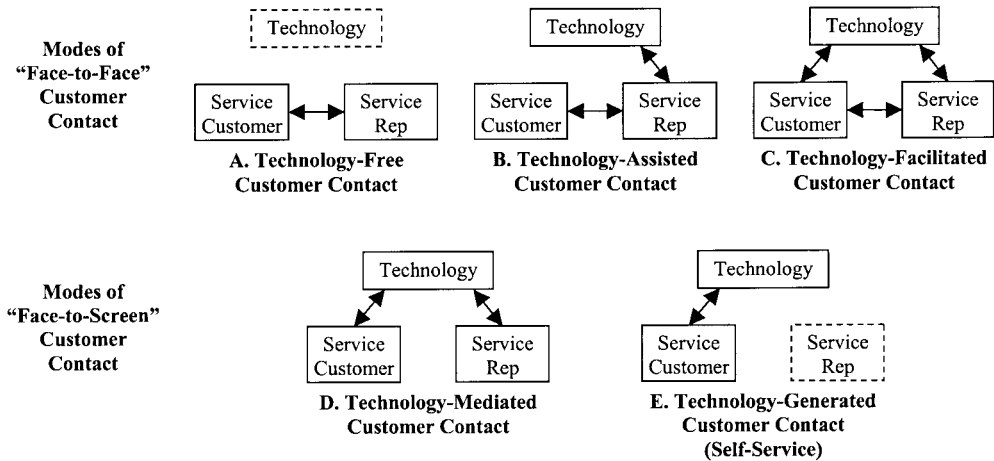
Several other related boundary-expanding SOM research opportunities are worth noting for the SOM research agenda. First, noted previously, we need a better understanding of service in a global context. Global service operations need scholarly research (Roth, Gray, Singhal, and Singhal, 1997). Only a handful of research articles have been published to date addressing important issues such as the global outsourcing of services (Apte and Mason, 1995) or cross-cultural issues in service delivery (Hallowell et al., 2002). Recent empirical research reveals that U.S.-centric 'truisms' may not be universal. Voss et al. (2003) show that operational factors influencing perceived service quality and customer satisfaction vary significantly between the U.S. and the U.K., which are seemingly similar cultures. The operational implication is this: There is an even greater need for understanding and monitoring the customer encounter experience (Cook et al., 2002; Chase and Dasu, 2001) as services expand regionally and globally.

Second, the management of nonprofits has yet to be studied systematically from an SOM perspective. Topics such as the management of volunteers, the delivery of a mission-based business, and performance measurement are areas for the further development of SOM theory and practice. To date, most research has focused on board of directors, leadership, and organizational change issues for nonprofits (Powell, 1987).

3.5. *Theme #5*: *Issues in Implementing Service Technology and E-services*

Information technology (IT), defined as computer-based technology used for information storage, access, processing, and communication, is a critical strategic choice for service design and delivery (Lovelock, 1995) and performance (Quinn, 1996). Yet a number of research opportunities still exist for the study of the implementation of IT in services. First, SOM strategies need to be examined as they relate to the utilization of more technology-mediated services. IT can serve multiple roles in the service delivery process (Dabholkar, 2000). Many firms are employing self-service technologies, and while there is much research on the successful implementation of such technologies, related SOM theory still needs to be articulated and tested. Froehle and Roth (2003) provide an extension to the customer contact view applied to technology-mediated services (see figure 5). They suggest a need to differentiate between physical face-to-face and virtual screen-to-face contacts in service designs. Further, IT could be employed to develop and enhance skills of knowledge workers (Gaimon, 1997; Maister, 1993). How should such technologies be implemented, for example, in the professional service firm context?

Second, service managers are increasingly interested in providing customized or personalized service offerings. To date, the design issues and challenges in integrating "high touch"

Modes of "Face-to-Face" Customer Contact

A. Technology-Free Customer Contact

B. Technology-Assisted Customer Contact

C. Technology-Facilitated Customer Contact

Modes of "Face-to-Screen" Customer Contact

D. Technology-Mediated Customer Contact

E. Technology-Generated Customer Contact (Self-Service)

Source: Froehle and Roth (2003)

FIGURE 5. Conceptual Typology of Technology-Mediated Customer Contact

and "high tech" service delivery systems have yet to be fully examined (see Huete and Roth, 1988).

Third, a recent service management truism is that "doing business on the Web makes the firm a service provider." E-services are becoming an increasingly important area for SOM study (Boyer et al., 2002; Heim and Sinha, 2002; Hill et al., 2002) and many of the traditional notions of services management and its economics have not yet been validated in electronic marketspaces. Research in e-services has been customer-based (e.g., business-to-customer or B2C), focusing on the online experience (Novak et al., 2000), service quality (Zeithaml et al., 2000), and customer choices (Iqbal et al., 2003). This research has also been operations-based, focusing on issues ranging from customer efficiency (Xue and Harker, 2002) to new service process configurations (Heim and Sinha, 2002; Roth, 1996). Neither knowledge-based, eService paradigms (Oliveira et al., 2002) nor operating principles related to e-service strategies (Voss, 2000) have been rigorously examined. The areas of business-to-business (B2B) commerce, and increasingly, people-to-people (P2P) services, such as distance learning and online communities like those on EBay and Yahoo, are of significant importance to the economy, but a SOM research perspective has yet to be meaningfully pursued.

4. Conclusions

In this paper, we have offered content-based insights for a research agenda that, when pursued, would significantly address the observed shortage of SOM research published in top POM journals (Agrawal, 2002). Future SOM research studying the research themes just discussed may require scholars to utilize a wider array of research methods than those currently employed (Meredith et al., 1989). Given the variety in structure and complexity of service management problems, SOM scholars may need to utilize methodologies commonly employed in other academic disciplines but falling outside the POM mainstream. For example, event history analysis, a common approach undertaken in economics and sociology to study the dynamic nature of empirical phenomena (Blossfeld, 1989), might be more appropriate for re-examining the "productivity paradox" observed in the implementation of service technologies. SOM scholars should make deliberate efforts to cooperate with researchers in other fields to promote cross-fertilization of ideas and the development of competencies in other methods.

Levitt's (1972) early observation about the importance and pervasiveness of services for all businesses continues to ring true thirty years later. Additionally, many business and environmental factors are altering the management landscape for services. Yet despite the size and growth of the service sector in industrialized economies, there is still much that remains to be understood about the science—and art—of service management. The agenda presented in this paper is a call to arms for advancing SOM scholarly research. Our aim is to provide useful theoretical guidance for advancing practice. Promising opportunities abound for additional study of SOM as, indeed, this is an exciting time to pursue no-holds-barred approaches to generating new knowledge that not only keeps pace with but leads the services that we investigate.

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Aleda V. Roth is the Distinguished Mary Farley Ames Lee Professor of Operations at the Kenan-Flagler Business School, University of North Carolina at Chapel Hill. She held faculty positions at Duke University, Boston University and The Ohio State University and was a visiting professor at London Business School and WHU-Otto Beisheim Graduate School of Management. Her research is motivated by theoretical and practical explanations of how service and manufacturing firms can best deploy their operations, supply chains, and technology for competitive advantage. She has over 100 publications and was distinguished by 14 research awards. She is Department Editor for *Production and Operations Management,* Associate Editor for *Management Science, Manufacturing & Service Operations Management, Journal of Operations Management,* and *Decision Sciences* (*DS*) and serves on the editorial board of *Journal of Service Research* and others. She is the President of POMS.

Larry J. Menor is an Assistant Professor at the Richard Ivey School of Business at the University of Western Ontario. He earned a PhD from the University of North Carolina at Chapel Hill. Larry's research interests include service operations strategy and new service development. His research has appeared in *Manufacturing & Service Operations Management, Journal of Operations Management,* and other journals.