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Foreword by Carl J. Schramm and William J. Baumol

Service Science: Research and Innovations in the Service Economy

Handbook of Service Science

Springer

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Foreword

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The transformation of the American economy over the last twenty to thirty years has frequently been characterized as the rise of the service economy. In the conventional telling, the United States moved from being primarily an agricultural nation in the nineteenth century, to having an industrial and manufacturing economy through much of the twentieth century, to finally becoming a service economy at the outset of the twenty-first century. Services now account for approximately 80 percent of economic activity, while agriculture has fallen to roughly one or two percent, with manufacturing making up the remainder.

This narrative is alternately told in positive and negative light. Those with a sanguine outlook on the U.S. economy see this as an upward progression, moving more and more people off the farm and out of factories and into more fulfilling, Maslovian hierarchy-oriented jobs. Accordingly, we have finally reached the cusp of achieving the vision long ago laid down by John Maynard Keynes, in which everyone enjoys more fun, leisure, and altogether more pleasure (Keynes, 1930). More nostalgic and pessimistic observers interpret the transition to a service economy as social and economic degeneration, an empty world in which we do little more than perform menial tasks and services for each other. To strengthen our national character and chart a brighter future, we must once again become a manufacturing-based economy—making things, in this dour view, is the *sine qua non* of economic promise.

Neither of these narratives holds much truth. In the first case, it is inaccurate to suppose that there is some far-off utopia of leisure to which we are inexorably advancing. The benefits of economic growth, to be sure, are real and substantial, but they are different from what is often presumed (or expected) to be the case. So we expect that a service economy brings increasing amounts of leisure—yet it turns out that people actually like to work, and thus the division of hours between work and leisure changes little. Likewise, nostalgia for a manufacturing economy is badly misinformed. Work today is generally safer and in many cases more cognitively-demanding than in the industrial economy of fifty or one hundred years ago.

We are not, contrary to semi-popular belief, a nation of burger-flippers and storefront greeters. And, such conflation of manufacturing and economic health is often based on the American experience in the immediate postwar decades—a time of rapid economic expansion, of course, but also a period during which nearly half of the American population was excluded from mainstream economic participation. In any case, even when manufacturing represented its highest historical share of economic output, it was matched by services—manufacturing has never accounted for a greater share of the economy than services.

So what does a service economy mean? Economic models of growth have in recent years determined that knowledge, human capital (education and skills), and innovation now play a larger role in propelling the economy than they did in previous eras. Yet these elements have always been important to economic growth to one degree or another—what's different today is that the entire structure of the U.S. and world economies is changing. As one of us has written, "Ahistoric models that do not distinguish one type of economic system from another are, to say the least, handicapped" (Baumol, 2002).

Whereas the United States could once be characterized as a system of "bureaucratic capitalism," we now stand firmly within an era of "entrepreneurial capitalism" (Baumol, Litan, & Schramm, 2007). As the name implies, the founding and growth of new firms, entrepreneurship, has become immensely more important to our society and economy than it once was. This transformation, moreover, is intimately bound up with the rising share of services in the economy and, more importantly, the changing character of services. And it is this change that the emerging discipline of service science seeks to study and facilitate. We live not only in a world of services but also in a world of ever-expanding possibilities and networks of activities. Indeed, networks and entrepreneurship are perhaps the twin hallmarks of this new and highly innovative service economy.

It is no longer accurate to think of our economy as solely defined by services—the array of innovations and business types is so vast as to defy any attempt at general categorization. As Jim Spohrer, the founding Director of IBM's Service Research efforts which began at the Almaden Research Center and who is one of the godfathers of service science, points out, our economy and society today are dominated by complex networks of service systems—overlapping systems that ceaselessly interact and create value. If we persist in thinking in terms of a manufacturing and services dichotomy and of which one we should have more or less, we will miss the changing nature of the economy and the urgent need for greater understanding of these *service system networks*. The increasing complexity and interactive capability of these networks mean we need to explore the expansive possibilities for service innovation and integration across different types of service systems. Failure to understand can have deleterious consequences.

Take the current recession and the global financial crisis that helped precipitate it: a common theme in the autopsy literature is that the global financial system suffered from a number of vulnerabilities that could have been prevented and, in some cases, were anticipated. A deeper understanding of the nature of service system networks may not have helped forestall the crisis, but could have lessened the

impact. As it is, the financial crisis will likely act as a spur to the field of service science.

Service science is, therefore, clearly of the utmost importance for critical, short-run phenomena, such as economic fluctuations. But it is also of comparable importance for the long-run performance of the economy. Indeed, the process of innovation is itself a service, with invention obviously serving as a critical input to production processes. Inventions are created by humans—not by machines and, therefore, clearly qualify as a service. Moreover, the entrepreneurial activity that ensures the effective utilization of innovations is also a service. Without these inventions, our societies would still be condemned to yield no more than the primitive living standards of the seventeenth century and earlier.

This book, and the illumination it casts on the role of service system networks in the economy, is badly needed. Discussions of the economy's production processes in economics textbooks still tend to focus on manufacturing and agriculture. But there is every reason to believe that analysis of the workings of the service sector offers an indispensable key to understanding the economic issues of today. This sector is of the utmost importance for the future of the economy and the well-being of society.

This Handbook, then, comes at a time when the insights it offers are of constantly growing significance for both the short- and long-run health of the global economy—the continuing recession deserves a full exploration, and may in fact serve as a hinge point in the continuing transformation of economic activity. We welcome the continuing efforts of Jim, Paul, Cheryl, and service scientists everywhere as they work at the highest pursuit of scientific enterprise: understanding.

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Preface

We are students of service. Our education began just a few years ago, after IBM acquired Price Waterhouse Coopers Consulting and IBM Research focused squarely on IBM's service businesses for the first time (Horn, 2005). As it turned out, we had a lot to learn. And we still do. This volume represents only the most recent leg on our educational journey. It will not be the last.

Service Science, also known as *Service Science, Management, Engineering, and Design (SSMED),* aims to be a new, interdisciplinary approach to study, improve, create, and innovate in service (Spohrer & Maglio, 2008, 2010). Though various approaches to service go back a long time (see for instance, Delaunay & Gadrey, 1992; Fisk, Brown, & Bitner, 1993; Smith, Karwan & Markland, 2007), Service Science is relatively new (Chesbrough, 2005). But already, a number of journal special issues and edited volumes collecting papers on it have already begun to appear (e.g., Hefley & Murphy, 2008; Spohrer & Riecken, 2006). In fact, when we first conceived of this volume, our idea was to take some articles from a special issue of the *IBM Systems Journal* that we had guest edited (Maglio, Spohrer , Seidman, & Ritsko, 2008), reprint some classic papers (to name just two, Shostack, 1977; Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994), and invite a few new contributions to create a volume that marked a moment in the development of Service Science. Our publisher, Springer, liked the idea that we wanted to create an edited volume on Service Science, but they envisioned something more comprehensive. In the end, they convinced us to put together a *Handbook of Service Science* containing all original contributions in a much larger volume that would definitively mark the history, practice, and possibilities of Service Science. Well, we certainly have a much larger volume than we originally set out to produce – whether it is definitive remains to be seen.

Our approach to putting together the *Handbook* was simple: Create a list of as many important papers and books in service that we could think of, select thirty or forty, and invite the authors to write an essay related to, updating, or going beyond their original work. Simple. Actually, it was pretty simple. And it worked. We are truly gratified that so many service pioneers and other distinguished scholars agreed to contribute, and we are truly thrilled with what has been produced. We hope you are too.

We thank everyone who helped and encouraged us to put this volume together, including Bill Hefley and Wendy Murphy, co-editors of the Service Science series at Springer, Melissa Fearon and Jennifer Maurer, our contacts at Springer, Josephine Cheng, Mark Dean, Jai Menon, and Robert Morris, our bosses at IBM, Carl Schramm and William Baumol, who wrote the foreword, and of course all the contributors, whose extraordinary work we are lucky enough to showcase here.

PPM, CAK, JCS
San Jose, California
September 1, 2009

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Introduction

Why a Handbook?

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Why a handbook? We can answer that question with a question: What does a service scientist need to know? This volume presents multidisciplinary perspectives on the nature of service, on research and practice in service, and on the future of research in service. It aims to be a kind of reference, a collection of papers by leading thinkers and researchers from across the spectrum of service research – the collected basics for a budding service scientist.

Service science is the study of value cocreation

Service science is an interdisciplinary approach to study, improve, create, and innovate in service (Spohrer & Maglio, 2008, 2010). We think of service as value cocreation – broadly speaking, as useful change that results from communication, planning, or other purposeful and knowledge-intensive interactions between distinct entities, such as individuals or firms (Spohrer & Maglio, 2010). And so we think of service science as the systematic search for principles and approaches that can help understand and improve all kinds of value cocreation (Spohrer & Maglio, 2010).

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To start, there are many kinds of value cocreation. There are many ways to divide up the expertise, labor, and risk associated with diverse human activities. Traditional service sector activities include transportation, retail, healthcare, entertainment, professional services, information technology services, banking, and insurance, to name just a few (see also US Census Bureau, 2007). One firm provides a service, such as banking, and a customer benefits by being able to securely store and access funds. The bank cannot exist without the funds customers store and the customer cannot have the convenience of access through various mechanisms (checking, automatic tellers, bank branches) without the capabilities the bank provides. Value is cocreated by the interaction of the two. A broader view supposes that all economic activity depends on value cocreation between different entities, and more specifically, that all economic activity is fundamentally an exchange of service for service (see, for instance, Vargo, Maglio, & Akaka, 2008, and the chapter by Vargo, Lusch, and Akaka in this volume). The key point is that different entities bring different capabilities and resources to bear and value results from interaction of resources and capabilities.

There are many different theories and methods that might be useful in the search for principles and approaches to understand and improve value cocreation. Disciplines that have focused on service include marketing, operations, industrial engineering, information systems, computer science, and economics, to name just a few. Marketing has long held that certain kinds of service activities need to be characterized and sold differently from goods (see, e.g., Shostack, 1977), and operations and industrial engineering have long understood that service processes need to be constructed differently from goods production processes (e.g., Levitt, 1972) and particularly in the context of specific technologies (e.g., Mills & Moberg, 1982). Modern computer science focuses on web services and service-oriented computing (e.g., Marks & Bell, 2006; Zhang, 2007), which aim to transform the way programs and applications are built from small components. Economics has long distinguished tangible goods from intangible services (e.g., Smith, 1776/2000; see also Delaunay & Gadrey, 1992).

It is ambitious – and perhaps a little silly – to suppose there might be a single science that can cover all of service, a science that combines theories and methods from such a wide range of existing disciplines and applies them to such a wide range of value-cocreation phenomena. At the very least, service science is already enhancing the conversation among different people and different disciplines focused on service (see also, Rust, 2004; Hefley & Murphy, 2008; IfM & IBM, 2008; Spohrer & Riecken, 2006). Some commonalities are already evident, and some progress is already being made. For example, we see Vargo and Lusch's (2004) service-dominant logic as one of the corner stones of service science (Maglio & Spohrer, 2008). Its primary definition is that service is the application of competences for the benefit of another entity, and its primary tenet is that all economic activity is an exchange of service for service. Drawn to its logical conclusion, this effectively flips the usual "goods-dominant" worldview on its head and takes service to be the primary category. According to service-dominant logic, rather than service being a kind of inferior, intangible good, goods themselves

embody the tangible aspects of service competence and obscure the true nature of the underlying service for service exchange. Such a profound shift in worldview is difficult to make, and not everyone agrees with it (e.g., Achrol & Kotler, 2006; Levy, 2006). More importantly, it is not always easy to get it right, and we admit to being inconsistent in how we have viewed service over the last few years (see the chapter by Vargo, Lusch, and Akaka in this volume). But we are coming around.

Another potential fundamental of service science is the service system (Maglio, Srinivasan, Kreulen, & Spohrer, 2006; Maglio & Spohrer, 2008; Maglio, Vargo, Caswell, & Spohrer, 2009; Spohrer, Maglio, Gruhl, & Bailey, 2007). This idea of service emerging out of systems of interacting components goes back much further than our use of it, of course: Some have focused on service systems for optimizing waiting and queuing processes (e.g., Riordan, 1962), some for the interaction among parts of a production process that includes firms and customers together (Chase, 1978), and some for the larger constellation of stakeholders (including suppliers, competitors, customers, and others) that together conspire in the generation of mutual value (Normann, 1984). For us, the key point is that value cocreation emerges from the interaction of many parts – and it can be formalized, analyzed, and designed despite its complexity.

Structure of the book

No organization is perfect. No matter what structure we choose, something will seem out of place. With that in mind, the book is organized in three main parts: Context, Research and Practice, and Future. We outline each in turn.

The first part is Context. It sets the stage for what's to come, introducing many of the basic concepts about service that will recur throughout. It is organized in two parts, Origins and Theory. Origins celebrates some of the seminal and pioneering work in service research with updates to several classics. Richard Chase reviews his seminal Harvard Business Review article (Chase, 1978) in "Revisiting 'Where Does the Customer Fit in a Service Operation?' Background and Future Development of Contact Theory;" Chase's customer contact theory remains important and influential, and here he reviews and places it in the modern service context. James Heskett and Earl Sasser update their seminal Harvard Business Review article (Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994) on the service profit chain in "The Service Profit Chain: From Satisfaction to Ownership," incorporating new research findings and new concepts that have followed from it. Benjamin Schneider and David Bowen recap their popular book (Schneider & Bowen, 1995) in "Winning the Service Game: Revisiting the Rules by Which *People* Co-Create Value," demonstrating that the key to service is people, front-stage, backstage, client-side, and everywhere. Roland Rust and Gaurav Bhalla provide an overview of critical notions of customer equity

and customer lifetime value in "Customer Equity: Driving the Value of the Firm by Driving the Value of Customers," focusing squarely on the revenue side – the customers – rather than the cost side – the operations (see also Rust, Zeithaml & Lemon, 2000). John Bryson and Peter Daniels set a broad service context in "Service Worlds: The 'Services Duality' and the rise of the 'Manuservice' economy" by summarizing a bit of their book (Bryson, Daniels, & Warf, 2004), and then taking it further, arguing that service might not be its own category, but is blended with manufacturing and so we have to understand it at a much finer grain.

The section on Theory lays out several different but related approaches to weaving a comprehensive approach or theory of service. Scott Sampson follows the tradition of Chase by emphasizing the role of the customer in service operations to create a powerful framework for understanding service in "The Unified Service Theory: A Paradigm for Service Science" (see also Sampson and Froehle, 2006). Stephen Vargo, Robert Lusch, and Michelle Akaka connect the influential service-dominant logic (e.g., Vargo & Lusch, 2004) to the foundation of service science in "Advancing Service Science with Service-dominant Logic: Clarifications and Conceptual Development". Finally, James Spohrer and Paul Maglio develop concepts and theory around service systems in "Toward a Science of Service Systems: Value and Symbols" (see also Maglio, Vargo, Caswell, & Spohrer, 2009; Spohrer & Maglio, 2009).

The second part is Research and Practice. It emphasizes empirical data and practical experience through the study and implementation of real-world services. It is broken into four sections: Design, Operations, Delivery, and Innovation. The section on Design takes the perspective of the service itself, considering mainly issues in effective service creation and development. In "Technology's Critical Impact on the Gaps Model of Service Quality, "Mary Jo Bitner, Valerie Zeithaml, and Dwayne Gremler review and update the now standard gaps model of service quality (see also Parasuraman, Berry & Zeithaml, 1990), particularly in the context of modern service technology. In "Seven Contexts for Service System Design," Robert Glushko develops a kind of taxonomy for service design that aims to bridge front-stage and back stage concerns across a variety of service situations (see also Glushko & Tabas, 2009). In "Business Architecture for the Design of Enterprise Service Systems," Susanne Glissmann and Jorge Sanz describe the fundamentals behind business architecture, particularly from the perspective of business services. In "People, Activities, and Information in Highly Collaborative Knowledge-based Service Systems," Cheryl Kieliszewski, John Bailey, and Jeanette Blomberg discuss their research and insights into service work practices and their implications for service system design.

The section on Operations reviews a variety of work related to management and engineering of service systems. In "The Neglect of Service Science in the Operations Management Field," Richard Metters expounds on the need for education and research in service by educators and researchers in operations in his personal essay (see also Metters and Marucheck, 2007). In "Death Spirals and Virtuous Cycles: Human Resource Dynamics in Knowledge-Based Services,"

Rogelio Oliva and John Sterman explain their system dynamics modeling approach to understanding the relation between human aspects of work and business aspects of service performance and quality (see also Oliva & Sterman, 2001). In "Service Science – A Reflection from Telecommunications Service Perspective," Eng Chew provides a case study in the application of service science ideas to telecom services, demonstrating both applicability and potential insight into process, innovation, and value. In "Service Engineering – Interdisciplinary and Multiperspective Framework to New Solution Design," Gerhard Gudergan explains the concepts and background of several approaches to service engineering.

The section on Delivery takes the perspective of implementation, focusing mainly on how service delivery actually works. In "The Industrialization of Information Intensive Services," Uday Karmarkar extends and updates his Harvard Business Review article (Karmarkar, 2004) on how industrialization of information services works, along with its social and business implications. In "Workforce Analytics for the Services Economy," Aleksandra Mojsilović and Daniel Connors show how optimization-based approaches to workforce management are critical to modern large-scale service delivery. In "Understanding Complex Product and Service Delivery Systems," William Rouse and Rahul Basole extend their article in the IBM Systems Journal (Basole & Rouse, 2008) showing how service value can be viewed as network flows through the use of many specific industry examples. In "A Formal Model of Service Delivery," Guruduth Banavar, Alan Hartman, Lakshmish Ramaswamy, and Anatoly Zherebtsov develop a formal model of service delivery that takes account of front-stage and backstage processes together in a way that enables analysis and reasoning about design.

The section on Innovation pulls together a variety of perspectives on the nature and processes of new service development and service improvement. In "Service Innovation," Ian Miles provides a broad review of service innovation studies, and starts to place them in a modern service context (see also Miles, 2008). In "Innovation in Services and Entrepreneurship: Beyond Industrialist and Technologist Concepts of Sustainable Development," Faridah Djellal and Faïz Gallouj discuss how models of sustainability and innovation do not take account of services, and show how a service perspective has a lot to offer. In "Service Innovation and Customer Co-development," Bo Edvardsson, Anders Gustafsson, Per Kristensson and Lars Witell apply service-dominant logic to understand the role of the customer in service innovation. In "Advancing Services Innovation: Five Key Concepts," Henry Chesbrough and Andrew Davies develop a novel model of service innovation based squarely on the notion of value cocreation. In "What Effects do Legal Rules have on Service Innovation?" Pamela Samuelson provides a concise history and context of intellectual property, contract, and tort law related to services, particularly digital information services and software, and suggests where the legal landscape may be heading and draws out implications for service innovation.

The third part of the book is Future. It focuses on the problems and prospects for building a truly interdisciplinary service science. Evert Gummesson gives a very personal account of the context of service, its history as a field, and the prospects for true integration of disciplines in "The Future of Service is Long Overdue."

Raymond Fisk and Stephen Grove provide their own historical perspective on the study of service, and how various strands of research (disciplines) might or might not come together in "The Evolution and Future of Service: Building and Broadening a Multidisciplinary Field" (see also Fisk, Brown, & Bitner, 1993). Michael Gorman characterizes service science as a kind of trading zone that brokers knowledge between different areas in "Normative Scenarios and Their Role in Service Science Trading Zones." James Spohrer, Guangjie Ren, and Michael Gregory review and update the recent "Cambridge Report" (IfM & IBM, 2008), defining key terms for Service Science and showing global progress toward the vision of service innovation roadmaps for all nations in "The Cambridge-IBM SSME White Paper Revisited." Kazuyoshi Hidaka describes service research and educational activities in "service science, Management, and Engineering in Japan." Linda Macaulay, Claire Moxham, Barbara Jones, and Ian Miles connect specific skills and service science education needs in "Innovation and Skills: Future Service Science Education."

In the end, of course, it is not clear there is – or there will be – a single, unified service science. But it is clear there is progress. There are common elements and themes, and common concerns and approaches that converge on the central real-world phenomena of value cocreation. A dialog has emerged among many proponents who aspire to a deeper scientific foundation for their views on service, one that attempts to define key terms and to incorporate them into fundamental insights and principles. We hope this collection has furthered that dialog and has captured much of what every service scientist should know.

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Part 1
Context: Origins

Revisiting "Where Does the Customer Fit in a Service Operation?"

Background and Future Development of Contact Theory

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In 1978 I asserted that a "rational approach to the rationalization" of services requires first of all a classification system that sets one service activity system apart from another (Chase 1978). The classification I developed came about from an effort to derive a business classification scheme and was predicated on the extent of customer contact with the service system and its personnel during the service delivery process. Based upon open systems theory, I proposed that the less direct contact the customer has with the service system, the greater the potential of the system to operate at peak efficiency. And, conversely, where the direct customer contact is high, the less potential exists to achieve high levels of efficiency. In this chapter I will review the contact approach as it was discussed in the article and offer some suggestions for its future development.

Classifying Manufacturing and Service Systems

The customer contact approach came about from an effort to derive a classification system that explicitly captured the role and impact of the customer as opposed to things, which is the basis of most product classifications. The standard approach to manufacturing system classification in 1978 and even today is the product process matrix proposed by Hayes and Wheelwright (1979). This uses the self evident terms of unit, batch, and mass production to specify how process efficiency varies with volume. Service systems, by contrast, are generally classified according to the service they provide, as delineated in the North American Industry Classification System (NAICS) code. This classification, though useful in presenting aggregate economic data for comparative purposes, does not deal with the

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production activities by which the service is carried out. It is possible, of course, to describe certain service systems using manufacturing terms, but such terms, as in the case of the NAICS code, are insufficient for diagnosing and thinking about how to improve the systems without one additional piece of information. That piece—which I believe operationally distinguishes one service system from another in terms of what they can and cannot achieve in the way of efficiency — is the extent of customer contact in the creation of the service. Extent of contact may be roughly defined as the percentage of time the customer must be in the system relative to the total time it takes to serve him. Generally, the greater the percentage of contact time between the service system and the customer, the greater the degree of interaction between the two during the production process.

From this conceptualization, it follows that service systems with high customer contact are more difficult to control and more difficult to rationalize than those with low customer contact. In high-contact systems, such as those listed in Figure 1, the customer can affect the time of demand, the exact nature of the service, and the quality of service since he or she tends to become involved in the process itself. In low-contact systems, by definition, customer interaction with the system is infrequent or of short duration and hence has little impact on the system during the production process.

As a side comment, service managers have always recognized that the back office (i.e., processes out of customer view) and the front office (i.e., processes involving customer contact) are different in the demands they make on operations. However, the specific implications of these demands were not made clear in the production and operations literature in the 1970s, which historically focused on the back office. Three writings, one by an executive, one by a marketing scholar, and one by an organization theorist were very useful in thinking about the issue. John Reed, CEO of City Bank captured the spirit of this distinction in a 1970's article in Bankers Magazine titled, "Sure It's a Bank but I think of it as a Factory," in which he talked about how production management could be readily applied to the processing of checks in the back office. Harvard marketing professor Ted Levitt pointed out that all services have a service front stage and a manufacturing like back stage component (Levitt 1976). James D. Thompson, a professor of business administration and sociology at Indiana University pointed out that from an open systems theory perspective, "customers or clients intrude to make difficult standardized activities required by [high volume long-linked] technology." From these writings I inferred that the front office is inherently at least, less efficient than the back office. An additional design perspective provided by Thompson's work is that a low-contact system has the capability of decoupling operations and sealing off the "technical core" from the environment, while a high-contact system does not. As he notes, "The technical core must be able to operate as if the market will absorb the single kind of product at a continuous rate, and as if inputs flowed continuously at a steady rate with specified quality." (Thompson 1967).

Pure services *(typically high contact)*	*Mixed services* *(typically medium contact)*	*Quasi-manufacturing* *(typically low contact)*
Entertainment centers Health centers Hotels Public transportation Retail establishments Schools Personal services Jails	"Branch" offices of: financial institutions government computer firms law firms ad agencies real estate firms Park service Police and fire Janitorial services Moving companies Repair shops	"Home" offices of: financial institutions government computer firms law firms ad agencies real estate firms Wholesale Postal service Mail order services News syndicates

← higher contact lower contact →

Increasing freedom to design efficient production procedures →

Figure 1. Classification of various service systems by extent of required customer contact in the creation of the service product

Effects of High Contact on Design Decisions

An important feature of the contact perspective is that the customer's presence affects virtually every operating decision of the service firm: The following are a few examples:

- *Facility location*: high contact operations are typically nearer to customers than low contact operations.
- *Facility layout:* high contact operations need to accommodate customer's physical and psychological needs, instead of just enhancing production.
- *Product design:* high contact operations must include the environment of the service and hence has fewer attributes than low contact operations.
- *Process design:* high contact operation processes have a direct immediate effect on the customer while in low contact systems the customer is not directly involved in the process.
- *Worker skills*: high contact workers comprise a major part of the service product and must be able to interact with the public, while low contact workers need only technical skills.
- *Quality control:* high contact quality standards are often in the eye of the beholder and hence variable, while low contact quality standards are generally measureable and hence fixed.

- *Capacity planning:* high contact capacity levels must be set to match to peak demand to avoid lost sales, while low contact operations can set capacity at some average demand level.

The managerial implications of these differences are as follows: First, unless the system operates on an appointments-only basis, it is only by happenstance that the capacity of a high-contact system will match the demand on that system at any given time. The manager of a supermarket, branch bank, or entertainment facility can predict only statistically the number of people that will be in line demanding service at, say, two o'clock on Tuesday afternoon. Hence employing the correct number of servers (neither too many nor too few) must also depend on probability. Low-contact systems, on the other hand, have the potential to exactly match supply and demand for their services since the work to be done (e.g., forms to be completed, credit ratings analyzed, or household goods shipped) can be carried out following a resource-oriented schedule permitting a direct equivalency between producer and product.

Second, by definition, the required skills of the work force in high-contact systems are characterized by a significant public relations component. Any interaction with the customer makes the direct worker in fact part of the product and therefore his attitude can affect the customer's view of the service provided. Obviously, you want to have "people - people" in high contact positions.

Third, high-contact systems are at the mercy of time far more than low-contact systems. Batching of orders for purposes of efficient production scheduling is rarely possible in high-contact operations since a few minutes' delay or a violation of the law of the queue (first come, first served) has an immediate effect on the customer. Indeed, "unfair" preferential treatment in a line at a box office often gives rise to some of the darker human emotions which are rarely evoked when such machinations are carried out by a ticket agent operating behind the scenes.

Questions for analyzing current contact strategy

Applying the foregoing concepts for analyzing a company's current contact strategy entails answering several questions:

- *What is your current contact mix?* Is it a pure service, mixed service, or quasi- manufacturing? What percentage of your business activity in terms of labor hours is devoted to direct customer contact? A good indication of where a production system falls along the contact continuum can be obtained by using the industrial engineering techniques of work sampling and system mapping.

- *Can you realign your operations to reduce unnecessary direct customer service?* Can tasks performed in the presence of the customer be shifted to the back office? Can you divide your labor force into high-contact and no-contact areas? Can you set up plants within plants to permit development of unique organizational structures for a narrower set of tasks for each subunit of the service organization?
- *Can you take advantage of the efficiencies offered by low-contact operations?* In particular, can you apply the OM concepts of batch scheduling, inventory control, work measurement, and simplification to back-office operations? Can you now use the latest technologies in assembling, packaging, cooking, testing, and so on, to support front- office operations?
- *Are your job designs and compensation procedures geared to your present structure?* Are you appropriately allocating contact and no-contact tasks? Have you matched your compensation system to the nature of the service system — for example, high-contact systems based on time and low-contact systems on output? Are you using cost or profit centers where these two measures are subject to control by the on-site manager?
- *Can you enhance the customer contact you do provide?* With all nonessential customer-contact duties shifted, can you speed up operations, by adding part-time, more narrowly skilled workers at peak hours, keep longer business hours, or add personal touches to the contacts you do have? As Sesser and Pettway (1976) note: "Although bank tellers, chambermaids, and short-order cooks may have little in common, they are all at the forefront of their employers' public images." If the low-contact portion of a worker's job can be shifted to a different work force, then the opportunity exists to focus that worker's efforts on critical interpersonal relations aspects.
- *Can you relocate parts* of *your service operations to lower your facility costs?* Can you shift back-room operations to lower rent districts, limit your contact facilities to small drop-off facilities such as film development boxes made famous by Fotomat in the 1970's, or get out of the contact facilities business entirely through of vending machines or jobbers?

Applying the concept

Going through the process of answering these policy questions should trigger other questions about the service organization's operation and mission. In particular, it should lead management to question whether its strength lies in high contact or low contact, and it should encourage reflection on what constitutes an optimal balance between the two types of operations relative to resource allocation and market emphasis. Also, the process should lead to an analysis of the organization structure that is required to effectively administer the individual departments as

well as the overall organization of the service business. For example, it is quite probable that separate managements and internally differentiated structures will be in order if tight coordination between high-contact and low-contact units is not necessary. Where tight coordination is necessary, particular attention must be paid to boundary-spanning activities of both labor and management to assure a smooth exchange of material and information among departments.

Author's comments, 2008: Future development of contact theory and service classifications

Self-service technologies and telecommunications are two areas where contact theory needs additional refinement, or perhaps reconceptualization. Self-service always presented bit of a problem since one could have high customer contact and high efficiency. However, the fact that sales opportunity is low at the ATM or do-it -yourself car wash (the examples I was thinking of when I wrote the 1978 article) seemed like a minor point which did not invalidate the general argument. Today, though, self-service is far more pervasive, as evidenced for example, by self checkout in the supermarket, airport check-in, and blood pressure measuring devices at the drug store. Such technologies can enable customers to be more efficient producers benefiting themselves as well as the service organization. Of equal significance to the evolution of customer contact is how remote contact as manifested via the internet affects sales opportunities and production efficiency. To get a better grasp of this requires extending the classification scheme to account not just for a customer's remote interactions with a business, but for his or her interaction with other remote customers as well. As suggested by Sampson (2008), we have three categories: (1) *Pure virtual customer contact* where companies such as eBay and SecondLife enable customers to interact with one another in an open environment. (2) *Mixed virtual and actual customer contact* where, for example, customers interact with one-another in a server-moderated environment such as product discussion groups, YouTube, and WikiPedia, and (3) *Technology enhanced customer contact* where a consultant from a service provider takes remote control of a customer's computer to solve operating problems at the customer's desk.

In addition to knowledge about virtual encounters, significant progress in classification also calls a better understanding of customer psychology as it plays out in a service interaction. For example, based upon a review of the psychology literature, Chase and Dasu (2001) found extensive support for having an encounter end on a high note. Thus, a classification categorization might be based upon the difficulty of achieving a positive finish for various encounter structures. A simple example of the issue is whether a server should convey good news first or bad news first. In a call center, it may be best to give the bad news that a shipment will

be delayed to get to the point right away, whereas when a doctor has bad news to convey, it might be best to build up to it gradually.

In conclusion, we have recently seen the introduction of two theories of services. One is "Service Dominant Logic," for marketing (Vargo and Lusch 2004), and the other is the "Unified Services Theory," which has an operations management orientation (Sampson and Froehle 2006). Reviews of these theories are found elsewhere in this volume. Such theory development is welcome and needed, but I would suggest that a key measure of the utility of these theories or any other theory for service engineering is how they can be used to create *operationally useful* classification systems. For example, any theory that puts all business processes in one category, such as calling everything a "service," will probably be of little managerial value. Three capabilities of useful classification systems are: (a) they enable service engineers to design interactions with the same rigor industrial engineers design physical processes, (b) they guide economic tradeoffs by managers, and (c) they facilitate service innovation.

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The Service Profit Chain

From Satisfaction to Ownership

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Prior to the establishment of the first formal courses in service management in the early 1970s, little research had been carried out to examine the properties of service activities that distinguished them from more-extensively examined activities of manufacturing organizations. While the traditional techniques of manufacturing management were invaluable to service managers, it was quickly discovered that service managers had to contend with a set of problems that the traditional tools could not solve.

There were few measures and no conceptual frameworks to guide early researchers. What became very obvious was that an integrative, cross-functional approach was needed. It was out of that need that frameworks such as the service profit chain and its "sister," the strategic service vision, arose. Both were intended to guide and shape best practice as well as research. That intent is being realized through a growing body of research and idea dissemination. As the research progresses, new measures of service effectiveness have emerged. What began as an exploration of customer and employee satisfaction has progressed to an examination of customer and employee commitment (or engagement) and, ultimately, "ownership" as better predictors of growth, profitability, or overall organizational success.

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The Service Profit Chain

The service profit chain posits, simply, that profit (in a for-profit organization) and growth (or other measures of success in for-profit or not-for-profit organizations) results from customer loyalty generated by customer satisfaction, which is a function of value delivered to customers. Value for customers in turn results from employee loyalty and productivity, a function of employee satisfaction, which is directly related to the internal quality (or value) created for employees (Heskett, Jones, Loveman, Sasser, and Schlesinger, 1994). The relationships are causal, not correlative. Management intervention intended to enhance profit and growth begins internally with employees. The relationships hold for operating units of a multi-unit organization as well as entire organizations. They are equally applicable to the service arms of manufacturing companies as well as not-for-profit organizations.

These relationships have been the focus of researchers since they were first suggested. Examinations of various aspects of these relationships were carried out beginning in the late 1970s to the mid-1980s (Schneider and Bowen, 1985; Parkington and Schneider, 1979; Heskett, 1986). Some of this was reported by contributors (including Shostack and Johnson and Seymour) to a path-breaking symposium on "the service encounter," in 1985 (Czepiel l, Soloman, and Surprenant, 1985). Elements of what later came to be known as the service profit chain were first portrayed as a "self-reinforcing service cycle" (Heskett, Sasser, and Hart, 1990) and later acquired the name that has characterized them since (Heskett, Sasser, Schlesinger, Loveman, and Jones, 1994). More recently, in the emerging service science literature, the self-reinforcing nature of service as win-win or value-cocreation interactions among service system entities has been highlighted (Spohrer, Maglio, Bailey, and Gruhl, 2007; Spohrer and Maglio, in press).

The early research on service profit chain relationships was largely case based, consisting of data obtained from individual organizations that demonstrated a correlation between elements of the chain. Studies that measured causal relationships in the entire chain followed. These included Anthony Rucci's examination of time lags in the effects between employee satisfaction, customer satisfaction, and store level revenue in a large retailing company (Rucci, 1997) and David Maister's (2001) measurement of causal relationships in the entire chain in his study of several thousand employees of 139 offices in 29 professional service firms, concluding that financial performance and what he termed "quality and client relationships" were driven by employee satisfaction.

Service profit chain elements are executed through what has come to be known as an operating strategy. But to what end? The answer lies in the context provided by another set of concepts, known collectively as the strategic service vision.

The Strategic Service Vision

The strategic service vision is a systematic way of thinking about strategy in a service firm. It consists of a target market (emphasizing the need for market *focus*), a service concept (basically a business definition centered around *results*—not products or services—provided for customers, positioned against results desired by customers and results offered by competitors), the operating strategy (designed to *leverage* value for customers over costs incurred in creating the value through organization, controls, policies, and practices related to the service profit chain), and support systems (created to achieve *excellence* in the capability provided to frontline service providers). It argues for a comprehensive and internally-consistent approach to the design and execution of successful service offerings. The framework applies to both internal customers (employees as well as other internal departments) as well as customers more traditionally thought of as external to the organization.

This set of concepts was evolving at the same time as those associated with the service profit chain. Related conceptual frameworks had been put forth by several authors (see, for example, Sasser, Olsen, and Wyckoff, 1978; and Normann, 1984). They were expanded by Heskett (1986). The strategic service vision clearly relies on and relates to a number of long-examined concepts from marketing (target market focus), operations (process design), human resources (organization theory), and management control (balanced scorecard measurement and reporting) reflecting the fact that service management lies at the intersection of these business functions and disciplines.

If the service profit chain is essentially a systematic way of thinking about an operating strategy embedded in the strategic service vision, two other related concepts provide linkages between employees, customers, and financial performance as well. They are: (1) customer and employee value equations and (2) what has come to be known as the "mirror effect."

Value Equations

Two links in the service profit chain relate to value both external (for customers) and internal (for employees) to the firm, suggesting the need for definitions of value. As a result, value equations have been formulated based on what customers and employees tell us about what they value most in their purchases and relationships or jobs, respectively. Elements of the equations are the most important of a larger number of factors and are intended to provide a basis for guiding both the planning and execution of strategies for meeting customer and employee needs.

Specifically, the customer value equation posits that:

Value to Customers = (Results + Quality of the Customer Experience)/(Price + Access Costs)

As noted early on (Sasser, Olsen and Wyckoff, 1978): "The service level is the consumer's perception of the quality of the service. It is a complex bundle of explicit and implicit attributes that attempts to satisfy the needs of a consumer.... The consumer explicitly or implicitly ranks service offerings on the basis of service level and price."

The customer value equation assumes that customers seek to buy or rent results (Christensen and Raynor, 2003; Levitt, 1960), not products or services, while engaging in a positive experience, taking into account both the explicit price and implicit costs of obtaining the results, including the ease of doing business with an organization and its people (access costs). Unfortunately, managers often think only of their products ("we sell hamburgers") rather than in terms of a total bundle of results that the consumer purchases. A fast-food restaurant that merely sells "hamburgers" can also have slow, surly personnel, dirty and unattractive facilities and few return customers.

Similarly, employee surveys have shown generally that they especially value, in varying orders of importance: (1) the quality (fairness) of a boss's decisions regarding people, (2) opportunities for personal development (more important in recent years), (3) the degree to which work is recognized, (4) the quality of one's associates on the job, (5) the capability and latitude granted to solve problems for customers, and (6) reasonable compensation (Schlesinger and Zornitsky, 1991)

From this work, we can formulate an employee value equation as follows:

Value to Employees = (Capability to Deliver Results + Quality of Work Experience)/(1/Total Income + "Job Access Costs")

In this case, many of the factors influencing employee satisfaction relate to the latitude provided for solving customers' problems as well as the quality of the workplace. But they are tempered by both compensation and job access costs such as the degree of job continuity and ease of maintaining work/life balance.

One reason that these value equations deserve attention is the level of interest in something that has come to be known as the "mirror effect."

The "Mirror Effect"

Data gathered from various multi-unit organizations under many conditions (even at country management levels) have demonstrated correlations between customer and employee satisfaction as well as strong inverse relationships between customer satisfaction and employee turnover rates in the service profit chain (Schneider and Bowen, 1985, 1993, and 1995; Schlesinger and Heskett, 1991). Further, these behaviors are linked to financial performance. The thesis holds that this knowledge, characterized as a "mirror effect," can, for example, be used as the basis for internal best practice exchange in helping poor performing units learn from those with better performance in a multi-unit organization.

Valid questions have been raised, however, about the validity of comparing units with different characteristics in examining the "mirror effect." For example, several studies have concluded that the nature of the service provided (or the kind of value sought by the customer) affects the strength of the relationship between employee and customer satisfaction (Bowen and Lawler, 1992). Other factors affecting the strength of the relationship may be store or unit size, the degree of emphasis on profit and growth in certain stores, service standards set by competitors to which customers have been exposed, and the degree to which the service encounter is mediated by technology. This argues for carefully constructed samples of units to be examined as well as close attention to the nature of the measures used (Silvestro and Cross, 2000; Loveman, 1998).

Based on research to date, it is safe to conclude that the service profit chain and related conceptual frameworks will be regarded as hypotheses for some time to come. They were set forth to articulate relationships capable of measurement in a field, service management, that had had little systematic attention. As such, they tempt examination. Since they were first articulated, many studies have examined one or more aspects of the relationships embodied in these concepts. While most of the studies have confirmed many aspects of the initial hypotheses, some of the hypotheses have fared better than others. In the process, added conceptual development and measurement has taken place, further enriching the field.

Where We Stand Today: From Satisfaction to Ownership

In its simplest form, the service profit chain is about developing an environment in which highly capable, engaged employees, acting as owners, interact with customers to create customer value far superior to that offered by the competition. As a result, these customers remain as customers [Retention], they buy more [Related Sales], they tell others about their positive customer experience [Referrals] and they make suggestions for enhancing the customer experience by suggesting new products or services and process improvements [Research and Development] These four "R's" of customer behavior fuel long term profitability and growth. Employees working in such an environment mirror these behaviors with high retention rates, strong motivation to improve the quality of their work life by recruiting others to work with them, and efforts to make suggestions on how to make things better.

More recent work on these ideas has moved service profit chain concepts forward, offering new measures that have increased the appeal of the concepts to practicing managers. This, in turn, has yielded a more systematic body of data that promises to provide benchmarks against which the performance of individual operating units and entire organizations can be measured. Further, it has led to the exploration of a "hierarchy" of employee and customer attitudes and behaviors, including: satisfaction (an attitude), loyalty (a behavior), commitment (an attitude), and ownership (an attitude characterized by certain behaviors).

Challenges for the Future

Challenges for the future exploration of the service profit chain take several forms, including measurement, validation, and application.

Measurement

Most of the studies of service profit chain relationships to date rely on large amounts of data required to examine even a portion of the chain. This may require that researchers relinquish control over the collection of at least a portion of the data needed, relying to some degree on already-existing data in organizations under study. Because managers often collect data for purposes other than research, it can raise questions ranging from relevance to accuracy.

One way of studying cause and effect in the chain is through the vehicle of the longitudinal study. Longitudinal studies carried out in a single organization require unusual access to an organization and its management as well as consistency of measurement over relatively long periods of time. As a result, factor analyses of opinions regarding retrospective or prospective behaviors may be used more frequently to study the phenomena. These are always subject to the criticism of the validity of relationships between what people say they have done or will do and actual behaviors. It will require added efforts to validate such opinion-based data, perhaps through selective sampling of actual behaviors and their comparisons with survey responses.

Of greater concern is the lack of comparability among studies carried out in different organizations. Ideally, those interested in carrying out this kind of research would establish some category "definitions" with recommended methods for collecting such data. Presumably, these would even include suggested wordings of questions to be employed in the data gathering. This would require leadership of the kind provided by an association or other academic organization.

Links in the chain related to value require more attention. While efforts have been made to define value equations for both customers and employees, as presented earlier, these involve notional measures. For example, how do we measure and compare such things as results, quality of experience, and access costs for research purposes? Presumably, this is best done by asking customers or employees to quantify them. But it will require even clearer definitions of exactly what we mean by each of these terms.

Further work on the impact of customers and employees as "owners" in the chain, and the extent to which their behaviors mirror each other, will require more fully-developed measures of the lifetime value of customers and especially that of employees. The latter will have to take into account not only the impact of employee turnover on recruiting and training costs, but also those associated with

productivity, attendant customer behaviors, and the benefits to the organization of psychic ownership.

Validation

Many studies that examine service profit chain hypotheses have been conducted to date. They can be characterized as partial vs. holistic, single-company vs. industry or multi-industry, "snap shot" vs. longitudinal, and firm wide vs. unit level in nature.

Studies of selected linkages in the service profit chain have generally been supportive of the hypotheses (Lau, 2000; Hallowell, 1996). As noted earlier, the small number of comprehensive examinations of the chain have tended to produce what might be considered as "weak links" at certain points (Silvestro and Cross, 2000), suggesting that under certain conditions, one or more sets of relationships may have limited relevance to financial outcomes. Alternatively, this may suggest the need for benchmarking results against those of comparable organizations in the same business to filter the impact of externalities on the data.

Issues of validation range from conditions under which service profit chain data is collected to the admission or exclusion of certain pieces of data. Again, the challenge of validation is different in studies involving a snapshot of a number of operating units at one point in time as opposed to longitudinal research. For example, externalities such as time lags between management actions and effects on employee and customer satisfaction, loyalty, engagement, and ownership may produce strong relationships between certain measures and weak ones between others. Unless the data is lagged or collected over a period of time (Rucci, 1997), the effect of time is lost.

Performance within multi-unit organizations varies greatly from unit to unit. This is true even for the best-performing organizations. For example, one study found no significant relationship between employee satisfaction and store performance until the data was examined by size of store (Keiningham, Aksoy, Daly, Perrier, and Solom, 2006). To date, studies that have compared only the best and worst performing units—excluding those in the middle of the performance spectrum on service profit chain measures—have produced the most statistically significant contrasts on all dimensions.

Attitudes and behaviors of customer-facing employees quite likely have strong influence on customer attitudes and behaviors. When their data is comingled with that of their superiors not in contact with customers, it may dilute the findings.

Application

Ironically, management acceptance and application of service profit chain relationships have outpaced their validation by researchers. That may be due to both the intuitive attractiveness of the conceptual framework, the communication of the concepts from academe to practitioners through consultants, and the positive "word of mouth" that certain applications have received. Whatever the explanation, firms from Australia to France have built their strategies around the ideas, judging from narratives which in some cases have even been presented in company annual reports.

Widespread application presents both an opportunity and an obligation for academic research. It means that there is ample availability of data waiting to be examined. But it is quite possible that some management action is based on mistaken assumptions, perhaps resulting from misleading or poorly-collected data, creating an obligation to extend current research to provide better guidance to practitioners considering the organized application of service profit chain concepts. This will require: (1) better definitions of terms used to describe service profit chain elements, perhaps even an ontology and epistemology of service phenomena as called for in the emerging service science literature; (2) recommended methods of collecting and organizing data; (3) standardized as well as new approaches to analysis; and (4) widespread sharing of results among both researchers and practitioners. It is work that is waiting to be done.

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Winning the Service Game

Revisiting the Rules by Which *People* Co-Create Value

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The chapter presents a summary and extension of our book, *Winning the Service Game*, published in 1995 by Harvard Business School Press (Schneider & Bowen, 1995). We summarize the "rules of the game" we had presented there concerning the production and delivery primarily of consumer services and note several advances in thinking since we wrote the book. We emphasize that people (customers, employees, and managers) still are a prominent key to success in service and that this should be fully recognized in the increasingly technical sophistication of service science. The foundation of this thesis is the idea that promoting service excellence and innovation requires an understanding of the co-creation of value by and for people. Further, that such co-creation is most likely to effectively occur when an appropriate psycho-social context is created for people as they produce, deliver and experience a service process. Such a context is the result of understanding the complexities of the people who are a central component of the service delivery system.

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> repurposing and retraining people from another industry sector, or identifying demographic segments yet to join the labor force."

In our estimation this does not portray people in the complexity marketing and human resources scientists have defined them. That complexity includes their talents, of course, but also their motivations, their attitudes, the nature of the service climate and culture in which they interact, and indeed the technical systems they use in creating value for each other and the organizations of which they are a part (Lovelock & Wirtz, 2004).

Our chapter can be viewed then as a service science cautionary tale, on several fronts. First is to guard against the new discipline of service science paying less attention to the role of people, and the inter-related disciplines of social psychology, organizational behavior and industrial-organizational psychology, than it does to the role of more technical approaches, and the disciplines that relate to them. To the credit of Jim Spohrer and others who have defined the field of service science, people issues are occasionally afforded attention in the stated definition of service science. Yet, the human resource/people piece does seem to be addressed with a narrow focus on skills and talent and the literature on the importance of context (organizational climate and organizational culture) is not explored at all.

Second is to be mindful of the factors that may lead to an under-emphasis on people in service science. For example, service science emerged primarily in a B2B business context. That context can invite an emphasis on economies of scale and the techniques that yield them that obscures and may even try to smooth over the uniqueness, contributions and expectations of people. Finally, we caution to keep in mind the endgame of service science—service innovation. In our estimation the true wellspring of innovation will remain as the minds and hearts of engaged customers, employees, and managers—people—committed to ongoing improvement in the co-creation of value.

In sum, the issue is not whether the new field designation of service science is a bad one but where the new designation is headed. For example, the new web-based journal *Service Science* (2009) has produced its first issue and articles are about automated optimal control, hyper-networks, computational thinking, and network transformation services. Spohrer (2009) in his editorial comment says the right things about interdependencies but the first issue of the new journal is narrow in its focus on B2B issues and information technology systems. The field of Economics has become increasingly behavioral—people-oriented—in the last decade or so; is the field of Service Science taking Service Management *less* behavioral? So, we raise here a cautionary flag.

In what follows, we elaborate on these points as we summarize the key issues raised in the 1995 book, as we were asked to do for this volume. Readers will see that the book in many ways addressed the issues just outlined but did so in less direct ways than we just did and will do so in what follows. We do the summary by chapter so interested readers can obtain an appropriate "feel" for both the structure and the content of the book. In the book we had 53 "rules of the service game" which we repeat at the beginning of each chapter summary as they form a useful

outline for what follows. These rules were developed largely with the B2C sector in mind, but they have considerable relevance for many B2B service relationships, as well. Service effectiveness in both settings requires knowing the rules by which to attract and retain the right mix of customers, employees, and managers within a psycho-social context that offers a value proposition to all three stakeholders. Many of our "rules" draw upon fundamental principles of individual and organizational psychology that can help inform management about how to manage people and their organizational contexts in *both* B2C and B2B settings.

Finally, we imagine that many of these rules from 1995 may sound like dated common sense here in 2009. Now if only common sense was common practice! We would even suggest that perhaps winning the service game is as much about getting better at executing the science we already know, as it is about generating new science.

Chapter 1: Building a Winning Service Organization by Mastering the Rules of the Game

The central point in Chapter 1 was that the rules of the service game are different from the rules of the manufacturing game. Service organizations in the extreme deliver to customers an experience rather than a tangible good so it is the delivery that counts since that is what creates the experience. If service organizations need to think differently about how they operate then managers need to think differently about what their organization is and how it behaves. Service organizations must function differently because customers are as much a part of the organization as the employees, including management.

We advocated a way of viewing service organizations in our 1995 book that aligns well with the recent service science perspective on service systems as dynamic, functionally-integrated combinations of resources. We indicated that the goal is the development of a seamless service system and we (Schneider & Bowen, 1995, pp. 2 and 8) offered:

> "…a unique view of service organizations---one that treats a service business as comprised of three tiers: a customer tier, a boundary tier, and a coordination tier. This three-tiered model stands in sharp contrast to traditional functional ways of slicing up organizations—like into marketing, human resources, and operations management. ….It is, instead, a book on how to strategically and holistically manage the hundreds of things that must be done well across three tiers to win the service game. …the three-tiered view of service firms, based on permeable tiers, not grounded in functions—can yield seamlessness in service delivery. By seamlessness, we mean that service, in all of its dimensions and characteristics, is delivered without a hitch."

The customer tier we conceptualized in terms of expectations for quality and needs, with an emphasis on customer needs for security, esteem and justice. The boundary tier we conceptualized as everything with which customers come in contact when interacting with a service delivery firm including the people, the equip-

ment/technology, and the physical space. In addition, that which supports the boundary tier—the "back office" and the equipment and technology designers—are also part of this tier because they link directly to customers through service delivery employees. In our framework, the designers of systems and procedures are critical to the creation of a service climate because employees must use them to serve customers and customers experience the degree to which those systems serve them or the organization.

The coordination tier was labeled "coordination" rather than "management" to emphasize again a service perspective of weaving together the various parties and elements of service, not controlling or managing them, per se. The point is that in service delivery, since it is an experience being created for customers, it cannot be managed as it unfolds. So, compared to a manufacturing environment where the production process can be stopped to make corrections, in service delivery once the process begins it unfolds as a whole without intervention. The role of management, like the conductor of an orchestra, is to coordinate all of the elements required for excellence to emerge.

We emphasized the idea that the goal of the coordination tier is the creation of a service climate or culture such that all functions and subsystems in the firm—marketing, operations, finance, human resources—see service quality as the raison d'etre of their function and of the entire organization. This focus on service climate was based on early research in bank branches that had shown that when employees at the boundary tier view their organization as one that has a positive service climate the *customers* they serve report receiving higher service quality (Schneider, 1980).

Figure 1 shows the results from the first study that revealed this relationship between employee reports and customer reports. In other words, when employees report their company really emphasizes service quality in all they do then the customers with whom they interact report positive service quality experiences.

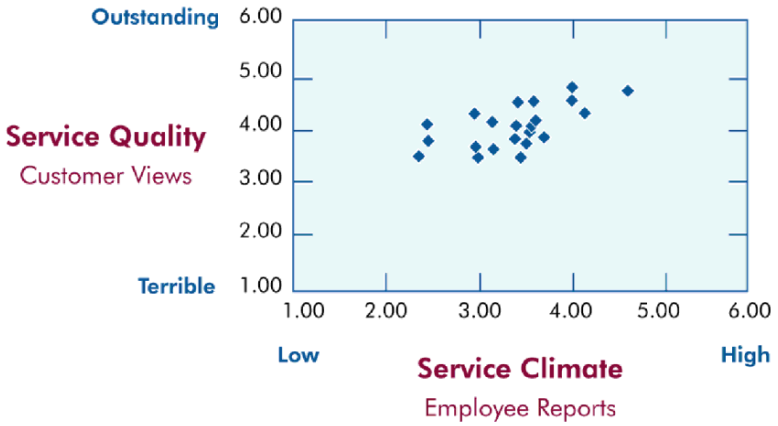

Figure 1. Relationship Between Employee Service Climate Perceptions and Customer Perceptions of Service Quality in Retail Bank Branches

There are now dozens of studies in the published academic literature that report similar results (Dean, 2004; Schneider & White, 2004) and this kind of research has come to be called "linkage research" (Wiley, 1996). The research has been carried out with samples of hotels, branch banks, auto dealerships, insurance agencies and regions, supermarkets, and so forth, wherever and whenever organizations have multiple outlets that serve customers. There is now also research at the firm level of analysis that reveals service employee perceptions of service climate relate directly to firm customer satisfaction and indirectly to financial and market performance for diverse service industry firms (airlines, telecommunications, retail, financials, and so forth; Schneider, et al., 2009b).

The point is that companies, and units within companies, that promote service quality in all they do across their subsystems create an environment for employees in which they are *engaged* in serving customers—and where customers respond with positive appraisals. Of course, what is important about those positive appraisals is that they lead to customer satisfaction, loyalty, retention, and sales and ultimately to positive financial and market performance (Anderson, Fornell, & Mazvancheryl, 2004; Gruca & Rego, 2005).

The chapter summaries that follow first present the rules and then a summary of the major points for that chapter, followed by extensions and more recent thinking as appropriate.

Customer Tier-Chapter 2: Meeting Customer Expectations

1. Manage the intangible
2. Really watch out for "habituated" expectations
3. Identify customers' two-tiered expectations
4. Analyze the complex "quality psychology" of *your* customers
5. Plan for recovery from systems failures
6. Know who really knows your customers
7. Monitor quality for improvement, not for data
8. Focus or falter in the marketplace

Services tend to be less tangible than goods so it is very important for management to understand that *how* the service is delivered is at least as important as *what* is delivered. That is, if you think about a restaurant, there is the food itself that is delivered and then there is *how* the food is delivered. Understanding what market niche a company wishes to occupy and exploit is all about understanding customer expectations for both what is delivered and how it is delivered. The problem with intangibles is that expectations for them are less clear than are expectations for tangibles; again, intangibles are experiences and tangibles can be touched and felt and used.

The reason why it is important for a business to know *its* customers' expectations is because they are the relevant market. We proposed in the chapter that the

keys to competitive advantage with regard to customer expectations are to know the following:

- Firm-specific customers' expectations
- Firm-specific customers' evaluations of service quality
- Firm-specific customers' evaluations of the firm's major competitors' service quality

The point we made is that a firm must do better than its major competitors to be competitive; perfection is not the goal but being superior to the competition is.

Customers are not necessarily aware of their expectations until something happens to violate those expectations. We called people's everyday expectations of which they are unaware "habituated expectations." Such expectations exist subconsciously and only come to awareness when violated. For example, when we enter a room we flick on the light switch and subconsciously expect the light to go on. Only when it does not go on do we understand we carry that expectation. In fact, the more reliable a service is over time the more customers' expectations become habituated. But understand that a service can be unreliably *superior* as well as inferior; positive changes in service delivery can raise to consciousness the excellence with which a service has been delivered.

Service researchers and practitioners are quite familiar with inferior reliability in service delivery and deal with it under the label "recovery" as in "we need to recover from that screw-up." When customer expectations are violated firms must recover to at least achieve where they were prior to the error. Recovery must be instantaneous and it must be extraordinary for it to be memorable; almost half of the reports on dissatisfying service experiences are for poor recovery to a service delivery failure (Tax & Brown, 2000). Recovery is very difficult because it involves the coordination of all parties involved (Michel, Bowen, & Johnston, 2009).

There has been some debate about whether service recovery can yield positive consequences for organizations that do it well; this notion is called the service recovery paradox. In other words, should a company make an error just to show how terrific it really is and thereby enhance customer satisfaction and loyalty? While there is occasional research that reveals the potential for improvements in customer satisfaction and loyalty following excellent recovery (DeWitt, Nguyen, & Marshall, 2008), the overwhelming evidence suggests this is not the usual case and it is especially damaging if following recovery the service is poor (Michel & Meuter, 2008).

What is interesting about customer expectations is that they contain two elements, one having to do with the *content* of the expectation and the other having to do with the *form*. So, people who go to a Quality 8 motel have expectations for the reliability and responsiveness of the service they will receive and so do those who go to the Ritz-Carlton. But the form of those expectations will differ greatly because people have different expectations as a function of the market niche in which they are "playing the game." And the same people at different times and for

aimlessly around. This also applies to providing sufficient directions for users to navigate a company website.

Our second pet peeve is failure of service delivery people to recognize the presence of a customer by making eye contact and nodding to indicate they are aware of the customer. Our identities are important to us and we like to feel important but to not even have our presence acknowledged is a dissatisfying experience striking at the core of our esteem.

Finally on esteem there are the race, gender and age issues in customer service that requires attention by firms. We note in the chapter how badly, for example, women who go to get their car repaired feel they are treated. Thus, *USA Today* (1994) reported the following data:

- 57 percent of women feel that auto mechanics don't show women the same respect as men.
- 35 percent of women feel mechanics treat them like idiots.
- 33 percent of women feel mechanics make them feel uncomfortable about what they don't know.

Similar issues emerge for minorities in encountering majority establishments where research (Butz & Deitch, 2005) reveals:

- Denial of an apartment rental when it is clear the apartments are available.
- Denial of a job when the job is open and they clearly qualify.

Finally, age becomes an increasingly important focus for service organizations of all kinds, not just the various kinds of long term care residential living facilities that are being created by Marriott and Hyatt among others. Age is important because we are an aging population that we can all count on, older people have more wealth and, most importantly, the self-esteem of the aged is more tenuous than is true for younger people. That is, as eye sight, hearing, and physical robustness all begin to decline the aging population does what it can to retain its esteem. But soda bottles that no longer can be gripped to be opened (forget about the tabs on soda cans), suitcases than can no longer be lifted into overhead racks on airplanes, and frequently non-working escalators requiring the walking of steps all contribute to feelings of a loss of esteem. Firms just must do a better job of being sensitive to such issues, and they can do this by consulting with their aging customers—and their aging employees.

The need for justice for us focused on the need for distributive, procedural and interactional justice. There are three bases for making judgments about fair treatment, equity being the one most people think of first. Equity has to do with the following: Are my outcomes (e.g., a pay raise) in the same proportion to my inputs (e.g., in the form of effort and performance) as are other's outcomes in relationship to their inputs. For customers equity is probably less relevant than are need and equality as a basis for judging fairness. Need here refers to the question: Am I getting what I need regardless of what others are getting. And equality here

entiation but the firm has to know its customers intimately and well to make those decisions.

Customer Tier-Chapter 4: Utilizing Customer Talents

14. Clarify the customers' co-production role
15. Improve customer ability through selection and training
16. Motivate customers to participate
17. Conduct customer performance appraisals
18. Watch for clues that customers could do more
19. Rely on customers as substitutes for leadership
20. Draw on customers as *co-designers* of the service delivery system

This chapter was about thinking of customers as co-producers rather than customers as mere recipients. So, rather than thinking of customers as masters to be served, we thought of customers as relationships in which the pursuit of common good was the goal. This perspective on customers has been adopted in the new field of service science, at least verbally. That is various papers outlining a theory of service science have made it clear that a goal of service science is to involve customers in the co-creation of value (Gadrey, 2002; Sampson & Froehle, 2003; Spohrer et al., 2006; Tien and Berg, 2003). But further reading in these papers yields the impression that the clear focus for now is on the conceptualization and execution of a service system to meet presumed customer requirements rather than the involvement of those customers and their skills and knowledge in the co-creation of value.

In retrospect, this chapter can be viewed as having foreshadowed customer co-creation of value as one of the central tenets of the "service-dominant (S-D) logic" of marketing (Vargo & Lusch, 2004). In S-D logic, value emerges only during the consumption experience and can not be embedded in manufacturing and the output itself. The customer is always the co-creator of value, together with employees and other resources of the organization. Service is a relational process in which value is created for and *with* the customer.

We conceptualized three co-production roles customers can serve:

- The human resources role—as another source of the production of services; as partial employees.
- Substitutes for leadership—as a source of direction to service employees.
- Organizational consultants—as partners in the design of effective service delivery systems.

In the human resources role we built on the work of Lovelock and Young (1979) who wrote the early and detailed comprehensive description of how to

Finally, an implicit motivation for us titling the chapter "Utilizing customer talents" was the idea that people desire to be and feel competent—by this we refer back to the earlier discussion of the need for self-esteem. It follows that companies that do the best job at making their customers be and feel competent will likely reap the joint rewards of improved overall productivity and customer loyalty. But it does not come free because companies have to invest in designing ways to select their customers appropriately, train them, monitor their behaviors to seek ways to improve it and educate their work force in how to work effectively with customers.

Boundary Tier-Chapter 5: Managing Personal Contact Through Hiring and Training

21. Reduce the high stress faced by boundary workers in serving both management and customers.
22. Hire people for *your* jobs in *your* business
23. Deepen the applicant pool to increase employee quality
24. Hire based on how people *behave* in the hiring process
25. Hire the right personality types (rigorously)
26. Manage both staff quality and staff levels
27. Know that informal training = learning the culture
28. Reinforce formal training's two key benefits back on the job

This chapter was the first of three concerning the boundary tier—the tier of the service firm that interacts most directly with the firm's customers. The second chapter was about reward systems and the third was about those features of the boundary between the service firm and customers that are physical, tangible and relatively fixed.

We paid great attention to the attributes of the people who deliver service, especially via who gets hired (selection) and how they learn to be competent (training). In particular we emphasized the importance of hiring and training that is relevant for the jobs of a specific company—we are not strong believers in off-the-shelf hiring and training unless they have been shown to be relevant for a firm's specific jobs and values. We believe this for two important reasons:

Hiring and training using off-the-shelf procedures makes employees a commodity because it says to both them and you that they are no different from those hired and trained by other firms with similar jobs. Such practice sends the wrong message to employees.

Hiring using unproven practices for jobs in a company will likely not yield the best possible people for a firm and, in addition, such procedures can lead to law suits if they are found to be discriminatory. Firms thus gain two advantages from

Two last points on selection deserve repeating here:

1. Firm hiring is only as good as the applicant pool from which the firm can make choices. Companies with positive service quality reputations have larger applicant pools because people's identities are wrapped up in where they work and a firm known for its positive characteristics yields positive feelings for those who work there—and for people who are seeking work.
2. No company we have ever worked with has employees who feel the staffing levels are what they should be; in every company employees feel short-handed by management. So, the issue is by how much are they short-handed? The staffing levels of service organizations are particularly vulnerable to cost-cutting because it is hard to calculate the specific contributions made by each worker to the profitability of the firm. We worked with one company where they fired the receptionist because they were not "productive" so the receptionist job fell to those who were "productive." Guess what, productivity went down!

Our major emphasis in the chapter was on selection because who a company hires provides the foundation for what that company will look like to (a) itself and (b) its customers. Nevertheless all the excellent hiring decisions in the world will not produce an excellent service work force if the training and coordination of those people is also not excellent and if the context in which people work does not strongly promote service excellence. With regard to training we made three specific points:

1. Training includes socialization to the new job and the new work place. Because people model what they see others doing and get impressions of the new work place from what other people say is important it is critical to put newcomers in situations where they get to model and chat with the kinds of people who best represent what the organization wants customers to experience (Louis, 1990).
2. Much classroom training is wasted because when trainees go back to the job what they learn in training is not reinforced there. Newcomers who return from training are told some variation of the following: "Forget what they just taught you in the classroom; we'll show you how it is really done."
3. Training that is not based on a job analysis of the complete job will focus on the easily identifiable skills, especially technical skills (e.g., computer skills), and ignore the interpersonal issues that are associated with service work. This is a big mistake because even if people are hired with the right personality, they still need help in learning the specifics of how to be helpful to custom-

ers on the job, knowing how to deal with complaining and abusive customers and so forth. As we noted earlier, the payoffs in productivity for companies appear to be well worth the investments made in it. This is true not only for the direct performance/productivity outcomes but also because service employees' own self-esteem is enhanced when they feel competent to deal with the many variables, both technical and interpersonal, associated with these jobs. Training is another thing companies can do that benefits the company, the customer, and the employees, too (Goldstein & Ford, 2002).

We placed great emphasis on who companies hire and how they initiate them through socialization and training to the new job and company because it is who companies hire and how they treat them as newcomers that customers experience. That is, newcomers are the foundation of service delivery because in most companies it is newcomers who staff the front lines, including the phones, and have immediate contact with customers. All the great systems in the world won't compensate for poor decisions on who to hire and incomplete or even inappropriate training. Simultaneously if employees are not surrounded by a climate of service excellence all of their skills will be for naught.

Boundary Tier-Chapter 6: Managing Personal Contact Through Reward Systems

29. Capitalize on the given that employees are motivated
30. Make certain that all rewards pass the seven tests of effectiveness
31. Diversify the reward system
32. Honor employee psychological contracts to enhance service quality for customers

There are several fundamental issues underlying this chapter and they can be succinctly summarized as follows:

- Employees are motivated to do their jobs well and to serve customers well; the job of management is to create the conditions that foster and release that motivation and not to "motivate them."
- Managers and executives think about rewards primarily in terms of money; they need to broaden their concepts of rewards to include goal accomplishment and PR (praise and recognition) as well.
- Money as a reward tends to fail the seven basic tests associated with any reward system (Kerr, 1975; Lawler, 2003) and these are summarized as follows:

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Subject Index