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

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 institu-
		    tions
		    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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