Customer-Centric Systems: A Multi-Dimensional View

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Abstract

Ideas related to customer-centricity (customer first, organize around the customer, customer at the top of the organization chart, voice of the customer) have been used frequently in marketing, strategy, and operations/ Six Sigma. In the IS field, however, the idea of customer-centricity is still quite undeveloped. For example, lacking a clear definition of customer-centric IS, it unclear whether the introduction and four articles in a recent special section of the Journal of Management Information Systems on customer-centric information systems actually mentioned any information systems that are genuinely customer-centric.

As a step toward a rigorous and useful concept of customer-centricity, this paper combines ideas about IT-reliant work systems (from the IS field) and services (from marketing). A customer-centric system is basically a work system that that recognizes and responds fully to customer needs. Characteristics of specific work system elements combine to provide a multi-dimensional view of the extent to which a system is customer-centric. A recently developed framework (the service value chain framework) provides guidance for designing additional customer-centricity into IT-reliant work systems. It is possible for a customer-centric work system to contain or use information systems that are not customer-centric, and vice versa.

Keywords: Customer-centricity, Customer-centric information system, Work system, Service system, Service value chain framework

1. Is Anything Unique about Customer-Centric Information Systems?

The idea of customer-centricity has become commonplace, but is often vague. "One of the most popular business concepts today, customer-centricity, has a dirty little secret. It is the concept with one of the loosest definitions out there. Most researchers, and business executives alike, are content with the widespread and broad definition of customer-centricity as the capacity to understand and respond to the customer's needs." (Mitraneau, 2005) Given that just about everyone agrees (or at least claims publicly) that organizations exist to serve their customers, that the customer comes first (or at worst second), and that the customer's views are essential in designing and evaluating systems, it is unclear whether the concept of customer-centricity adds anything to either system research or system practice.

The idea of customer-centric information system (CCIS) might seem like a new label for previously existing ideas. For example, since all purposeful systems should respond to customer needs by providing value for customers, what does the concept of customer-centricity contribute to the design or evaluation of systems? Even without introducing the idea of CCIS, it is widely

agreed that value for users or customers is usually higher when interfaces are personalized and when products and services are customized. Similarly, it is generally agreed that most marketing organizations do better when they have and use meaningful information about customers.

A special section of the *Journal of Management Information Systems* (Vol. 23, No. 3, Winter 2006-7) provides a recent representation of existing ideas about CCIS, versus customer-centricity in general. The four papers in that section include Wagner and Majchrzak (2006), Liang et al (2006), Zhang et al (2006) and Mithas et al (2006). The latter three papers discuss topics related to customer-centricity, but do not mention customer-centricity explicitly. The excellent paper by Wagner and Majchrzak discusses three examples of wikis and characterizes customer-centricity as a combination of co-creation by customers and customer engagement. It notes, however, that only 1 of 1000 users of Wikipedia are contributors, while 999 of 1000 are "lurkers." If co-creation and customer engagement are defining characteristics of a CCIS, it is not clear why the contributions of 1 out of 1000 users should qualify Wikipedia as a CCIS.

In the midst of a number of generalizations about CCIS, the Introduction to the special section (Liang and Tanniru, 2006) says, "Wikipedia.com and blogs are examples of customer-centric ISs in which customers influence the way the system is conceived, developed, and disseminated." Table 1 shows that the Introduction's generalizations about CCIS do not describe Wikipedia. Lacking other CCIS exemplars, it is not clear whether any important CCIS exist today and whether CCIS are likely to exist in the near term future. One might change the assumptions in Table 1 so that they would fit blogs and wikis, but it is not clear how that would add to currently existing understandings of blogs and wikis. The next section identifies a set of ideas that could form the basis of a more useful concept of CCIS. Subsequent sections develop those ideas.

2. A Perspective Based on Work Systems

This paper provides a new perspective on CCIS based on ideas that highlight customer needs and responsibilities. These ideas can be used when describing or analyzing almost any system in an organization. Instead of starting with the special case (CCIS) and assuming it has unique characteristics, we start with a general case (work systems) and treat CCIS as a special case of work systems. This approach generates greater clarity about what, if anything, is special about CCIS as a category. More important, it provides a conceptual basis for incorporating features of CCIS into any information system or other work system that might benefit from those features. This section defines the term work system and explains why information systems are work systems. The subsequent section explains that work systems can also be viewed as service systems, thereby providing additional ideas that can be used in designing and evaluating work systems in general and CCIS in particular.

Work systems. Alter (2003) argues that IT-reliant work systems are the core subject matter of the IS field. A work system is a system in which human participants and/or machines perform work using information, technology, and other resources to produce products and services for internal or external customers. (Alter, 2003; 2004; 2006) Typical work systems include systems for finding new customers, creating production schedules, acquiring supplies, providing service through a call center, providing medical care, designing new products, and generating financial statements. Almost all significant work systems in today's organizations are IT-reliant.

Table 1: Does Wikipedia Qualify as a Customer-Centric Information System (CCIS)?	
Generalizations about CCIS in Liang and Tanniru (2006)	***Relevance to Wikipedia***
Customer-centric IS are driving a new, third generation [of IS], where business competitiveness is largely determined by the ability to use technology not just to create value but also to electronically deliver value directly to customers and build interactive relationships with them."	Wikipedia is not about competition. It is about people banding together to produce a free encyclopedia. Wikipedia delivers value to users, but almost all users have no more of an interactive relationship to Wikipedia than to any web site that provides information.
"A newly emerging focus in system development is designing and configuring the various components of customer-oriented value chain to meet the ever-changing customer value proposition."	Wikipedia does not seem to have an ever-changing value proposition. While specific entries may be created or updated, the basic value proposition is about obtaining information from a free, web-based encyclopedia.
"A customer-centric IS is designed with customer preference and needs in mind, which makes the system development a dynamic process."	Every purposeful system should be designed with customer preferences and needs in mind. Also, it is not clear how a "dynamic process" of system development applies to Wikipedia. Its basic structure for a user seems relatively unchanged over the last several years even though specific entries are created and updated.
"A customer-centric IS can be viewed as one that is able to configure four major components—*customer, process, technology,* and *product/service*—to satisfy a customer need."	Wagner and Majchrzak's (2006) description of Wikipedia doesn't imply that it is "able to configure four major resources." When people create or update entries they are serving as contributors to an encyclopedia creation and maintenance process, not as customers of the encyclopedia. The vast majority of users (customers) of Wikipedia (99.9%) are "lurkers" rather than contributors.
"Customer profiles are analyzed to identify their needs and develop information requirements (often through customized products or services). These customized products or services then determine the manner in which business processes are configured (i.e., designed, assembled, or adapted)."	Wikipedia does not use customer profiles to identify needs and develop information requirements. It does not have "customized products or services" that "determine the manner in which business processes are configured."
"In a customer-centric IS, the role of customers can be either *active* or *passive.* … The critical issue in such systems is the effectiveness with which customers are integrated into the evolution of the system."	The role of customers can be either active or passive in any information system. Any system, customer-centric or not, will gradually stop serving its customers if customer needs are not integrated into its evolution.

Work System Framework. Any work system can be analyzed using the work system framework (Figure 1), which was developed to help business professionals recognize and understand IT-reliant systems in organizations. The work system framework emphasizes business rather than IT concerns. It identifies nine elements that are part of even a rudimentary understanding of a work system. (Alter, 2003; 2004; 2006).

Information systems as a special case. Information systems are a special case of work systems. Information systems are work systems whose processes and activities are devoted to processing information. Some information systems, such the work system through which Wikipedia users find information, exist to produce products and services for customers. Many other information systems are best understood as producing intermediate products and services used in larger work systems. In such cases, the information system produces intermediate products and services that are meaningful and useful primarily in the context of a larger work system that involves activities beyond processing of information. Other important categories of work systems include projects, supply chains, and e-commerce web sites as they are used. For example, a supply chain

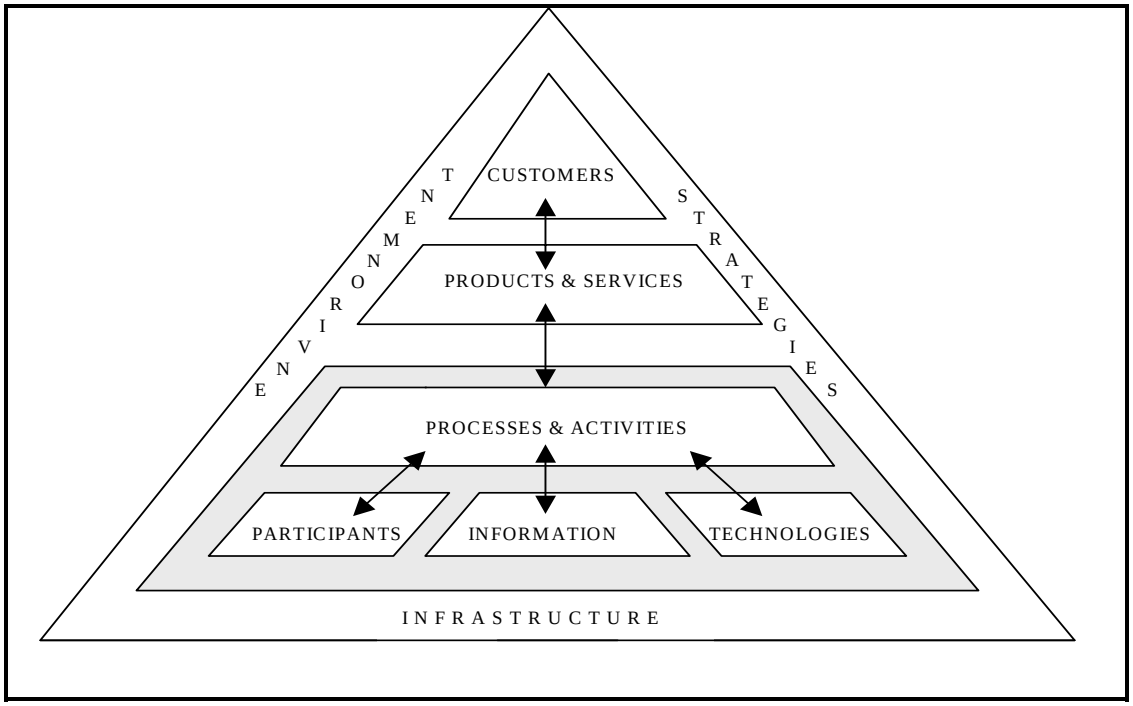

Figure 1. The Work System Framework (slightly updated). (Alter, 2006)

is an interorganizational work system designed to procure supplies required by an end customer. The use of an ecommerce web site can be viewed as a work system in which a customer uses the web site to identify, understand, and purchase products.

3. Viewing Work Systems as Services

This section shows that work systems can be viewed as service systems. The next section will explain how the elements of a work system form the basis of dimensions of customer-centricity that can be applied in defining and understanding CCIS. It will also demonstrate the relevance of the additional ideas about service that are presented in this section.

Services. Extended debates in marketing have examined the distinction between services and goods. For example, Vargo and Lusch (2004b) argue that four characteristics often believed to distinguish services from goods – intangibility, inseparability, heterogeneity, and perishability – "(a) do not distinguish services from goods, (b) only have meaning from a manufacturing perspective, and (c) imply inappropriate normative strategies."

We adopt Vargo and Lusch's (2004a) definition of services: "the application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself." This definition is more inclusive than earlier definitions and "captures the fundamental function of all business enterprises." One of eight "fundamental propositions" in their paper in the *Journal of Marketing* is that "goods are distribution mechanisms for service provision." Thus, their definition of service "is applicable to all marketing offerings, including those that involve tangible output (goods) in the process of service provision."

Co-production of services by producers and customers is part of some definitions of service, such as "a time-perishable, intangible experience performed for a customer acting in the role of a co-producer." (Fitzsimmons and Fitzsimmons, 2006) In some cases, however, the idea of co-production of services seems counterintuitive. (Do I really want to co-produce housecleaning with my housecleaner?) An article that searched for the defining features of service concluded that a milder form of co-production is the defining feature: "with service processes, the customer provides significant inputs into the production process." (Sampson and Froehle, 2006). The idea of co-production is part of a framework that will be described below.

Service systems. Service systems are work systems that produce services for internal or external customers. According to Vargo and Lusch's definition and their clarification about tangible outputs, all work systems, even those that produce physical things, can be viewed as service systems because their processes and activities necessarily involve "the application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself." Today, almost all significant service systems are IT-reliant work systems that exist within or across organizations.

Service Value Chain Framework. Figure 2 presents a generic value chain model that highlights typical components of services, and can be used to characterize CCIS and to evaluate specific CCIS. This framework's form and content are based on a series of assumptions about services:

- ***Co-production***. Because services are co-produced (Vargo and Lusch, (2004a); Sampson and Froehle (2006), Fitzsimmons and Fitzsimmons (2006)), understanding services requires attention to activities and responsibilities of both service providers and service customers.
- ***Internal and external customers***. Basic ideas about services are largely the same regardless of whether services are directed at external customers, internal customers, or both.
- ***Customer experience***. The entire experience that typical customers associate with acquiring, receiving, and benefiting from a particular service affects customer satisfaction.
- ***Beyond fulfilling a request***. Although the fulfillment of a service request is typically viewed as the core of the service, activities related to awareness, negotiation, setup, handling of the request, and follow-up impact service quality and satisfaction.
- ***Negotiated commitments***. Many service situations involve delivery of services based on negotiated commitments under which the service may be requested and delivered repeatedly.
- ***Preparation***. Preparation by providers and/or customers prior to each instance of service delivery is often essential for service efficiency and effectiveness.
- ***Service request***. For many services, each instance of service delivery includes an explicit or implicit service request. The handling of the service request is an important part of service delivery and often affects customer satisfaction.
- ***Front-stage and back-stage***. Services often involve front-stage and back-stage activities by both service providers and customers.
- ***Follow-up***. Some services require follow-up by providers and/or customers. Follow-up may be related to a single service instance (Was the installation OK?) or to multiple service instances (How responsive is your account manager?).
- ***Benefit capture***. Benefit capture is a customer's process of attaining the primary benefits that were sought. Customers may experience benefits as the service is produced and/or may experience benefits later.

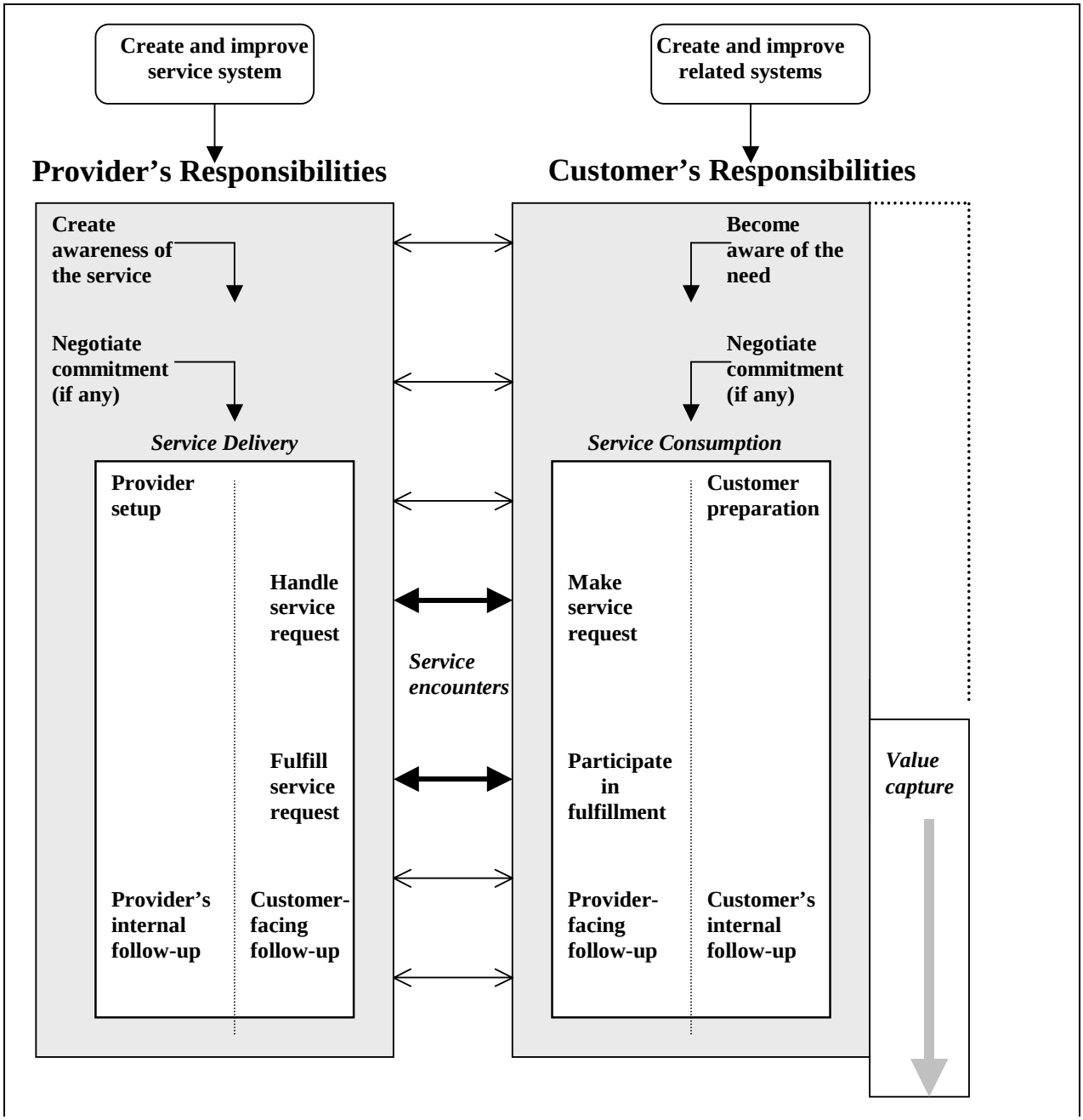

Figure 2: Service Value Chain Framework (Alter, 2007)

4. Dimensions of Customer-Centric Work Systems

As noted at the outset, "most researchers, and business executives alike, are content with the widespread and broad definition of customer-centricity as the capacity to understand and respond to the customer's needs." (Mitraneau, 2005) Elements of the work system framework point to a variety of directions for increasing a work system's customer centricity. For example, a work system's customer-centricity might be increased by customizing the products and services it

produces, by changing the process to accentuate co-production, by personalizing the technology used, or by using customer information more effectively.

We define a customer-centric work system (CCWS) as a work system that recognizes and responds fully to customer needs. A special case of CCWS, a customer-centric information system (CCIS) is an IS that recognizes and responds fully to customer needs. Since CCIS is a special case of CCWS, the characteristics of CCWS should also apply to CCIS. We will identify the characteristics of CCWS and then will see whether and how CCIS are unique.

In relation to work systems, customer-centricity is a multi-dimensional construct rather than a binary, yes/no construct. The definition of CCWS is related to a work system as a whole, but the dimensions of customer-centricity are related to specific elements of a work system. Table 1 lists 12 dimensions of customer-centricity in a work system.

Table 1: Dimensions of customer-centricity in work systems.

Work system element	***Dimension***
Customer	• Recognizing and responding fully to customer needs • Providing a satisfying customer experience
Products and services	• Producing customized products and services
Processes and activities	• Personalizing or customizing processes and activities • Using customer information to maximize benefits for customers • Relying on co-production or self-service by customers
Participants	• Non-customer participants recognize and emphasize customer needs and priorities
Information	• Availability of customer-related information to maximize benefits for customers
Technology	• For any technology used by customers, personalization or conformity to customer work practices, standards, terminology, convenience, or tastes.
Infrastructure	• Avoidance of interfering with or operating incompatibly with relevant aspects of the customer's infrastructure.
Environment	• Operating consistent with the customer's environment wherever the customer is involved with co-production
Strategy	• Producing products and services that are consistent with the customer's strategies.

The dimensions in Table 1 were chosen based on the assumption that each of them contributes to the likelihood that a work system will recognize and respond fully to customer needs. The existence of some exceptions, such as specific work systems in which customized products and services do not matter to most customers, does not undermine the independent association of each dimension with greater customer-centricity. As will be shown in Table 3, a work system's location on each of the dimensions can be rated on a scale from 0 to 3 or 0 to 7, either for classifying a work system as customer-centric or not, or as an aid in evaluation or design.

The phases of the service value chain framework provide additional ideas that can be used in designing and evaluating a work system, and hence, a CCIS. Table 2 presents ten customer-centricity dimensions related to those phases. The dimensions in Table 2 are not as broadly applicable as those in Table 1 because many work systems encompass only one or two of the phases in the service value chain framework. (In practice, the decision about which phases of the service value chain framework to include in the work system that is being analyzed

depends on the nature and scope of the problem that made it worthwhile to perform the analysis. If the problem is basically about a particular phase, that phase defines the scope of the work system that is being analyzed, and the other phases are treated as part of other work systems.) Table 2 has value, nonetheless, because it suggests areas in which a work system's customer-centricity might be improved. As with the dimensions in Table 1, it is possible to convert each dimension into a question that can be used to evaluate work system on a 0 to 3 or 0 to 7 scale.

Table 2: Dimensions of customer-centricity related to the service value chain framework

Phase	***Dimension***
Awareness	• Making the customer aware of the availability, scope, and significance of the service
Commitment	• Providing a comfortable and mutually effective process of negotiating any commitments that are relevant to subsequent service provision
Preparing	• Preparing for specific instances of service delivery • Making it easy and convenient to the customer to perform for any necessary preparations
Requesting service	• Providing a comfortable and mutually effective process through which the customer can make and the provider can respond to requests related to a specific service instance
Fulfilling the request	• Performing the work that fulfills the request • Making the customer's participation in the fulfillment phase comfortable and effective.
Follow-up	• Performing any follow-up that is necessary to ensure that the customer receives the anticipated benefits from the products and services provided. • Making any follow-up by the customer comfortable and effective.
Service encounters	• Assuring that service encounters that occur through the service value chain are performed professionally and effectively

5. Customer-Centric Information Systems

This paper started by saying that CCIS needs a clearer definition so that the concept of CCIS can be used in practice and in research. This section relates alternative definitions of CCIS to ideas presented thus far. It builds upon key points in the previous sections, including the work system framework, service value chain framework, and dimensions of customer-centricity.

Basic Concepts of CCIS. The definition of CCIS should be based on the following ideas:

- Customer-centricity is fundamentally about fulfilling the needs and desires of customers.
- CCIS are IT-reliant work systems. Therefore any CCIS can be understood and analyzed using the nine elements of the work system framework. (In the broadest sense, the concept of CCIS includes computerized and non-computerized systems. In today's business world, almost all CCIS's of interest are computerized.)
- CCIS can be viewed as service systems because CCIS are work systems and work systems can be viewed as service systems. Consequently, selected concepts about service, such as co-production of services, the customer experience, and the phases in the service value chain framework, can be used to understand and analyze CCIS.
- CCIS can be evaluated using the dimensions in Tables 1 and 2. The dimensions in Table 1 concern specific elements of a work system and apply to any work system (including IS and CCIS, which are special cases). The dimensions in Table 2 are reminders to consider issues related to the major phases of the service life cycle framework.
- Customers of a CCIS are the people who benefit from receiving and using the information it produces. People who enter information or otherwise contribute information to a CCIS are

not necessarily customers of the CCIS. They are customers only if they benefit from receiving and using the information it supplies.

- The satisfaction of CCIS customers depends on both the quality of the customer experience and the quality of the information produced or supplied by the CCIS.
- Whether a particular information system is a CCIS is determined by what it does and how it benefits its customers. Although customer engagement in system development is often beneficial, customer engagement in system development is not a defining characteristic of CCIS. Treating customer engagement as a defining characteristic would make it impossible for information systems with thousands of dispersed users to qualify as CCIS.

Basic definition of CCIS. A CCIS can be defined as an IT-reliant work system that produces or supplies information and that genuinely fulfills the needs and desires of customers. Unfortunately, with this basic definition the only way to determine whether an IS qualifies as a CCIS is to ask the customers. Worse yet, an IS that qualified as a CCIS yesterday might not be a CCIS tomorrow if customer needs or opinions suddenly change. A multi-dimensional definition based on the dimensions in Table 1 minimizes this type of problem.

Multi-dimensional definition of CCIS. Given that multiple dimensions of customer-centricity can be evaluated separately, the classification of an IS as a CCIS (or not) is basically a question of where to set the bar. To qualify as CCIS an IS might need a total "customer-centricity score" greater than a minimum such as 14 or 20 out of 36 possible points. Table 3 explains the author's subjective scores for Wikipedia, whose customer-centricity score is estimated to be 12. The exercise of rating a large group of information systems for customer-centricity could be interesting. It would probably show that traditional corporate IS rate quite low in customer-centricity, that typical web-based IS earn 7 to 10 points for operating consistent with web standards, and that very few IS, web-based or not, score higher than 15 out of 36 points. The relatively low scores would occur because few IS demonstrate the customization, personalization, and customer-beneficial use of information that would occur in a genuinely customer-centric IS.

Relationship between customer-centricity and customer satisfaction. The widespread interest in customer-centricity in marketing and other fields is based on the assumption that customer-centricity leads to customer satisfaction. Nonetheless, there are many situations in which customers probably do not care about high degrees of customization, personalization, and self-service. For example, many travelers don't care about having a customized seat on an airplane. They would be quite happy with a comfortable, convenient, and safe flight. It would be interesting to see whether customer-centricity ratings for a large sample of information systems would be correlated with customer satisfaction. It is possible that in many situations the various dimensions of customer-centricity are not as important as simply solving the customer's problem.

Table 3: Determining whether Wikipedia is a CCIS

Characteristic Related to Dimensions in Table 1	*Score*	*Explanation*
The IS recognizes and responds fully to customer needs.	2	The customer defines the queries. Wikipedia may or may not respond fully to customer needs.
The IS provides a satisfying customer experience	2	The experience is reasonably satisfying, depending on whether useful information is available.
The IS produces customized products and services	0	No customization – each user receives the same answer to a given query.
The IS personalizes or customizes processes and activities	0	No personalization – Wikipedia provides the same retrieval capabilities for all users.
The IS uses customer-related information to maximize benefits for customers.	0	Wikipedia does not use customer-related information to maximize benefits.
The IS relies on co-production or self-service by customers.	3	Wikipedia is a self-service system.
The IS's non-customer participants recognize and emphasize customer needs and priorities.	0	The use of Wikipedia does not involve non-customer participants.
The IS contains customer information that might be used for the benefit of customers.	0	Wikipedia does not contain customer-related information.
The IS's technology and interfaces are personalized to conform with customer work practices, standards, terminology, convenience, or tastes.	0	Wikipedia's technology and interfaces are not personalized.
The system avoids interfering with or operating incompatibly with relevant aspects of the customer's infrastructure.	2	Wikipedia uses standard Web infrastructure that is ubiquitous. However, some organizations might block Wikipedia for a variety of reasons.
The system operates consistent with the customer's environment wherever the customer is involved with co-production.	2	Wikipedia does nothing to recognize the customer's environment, but its web standard appearance conforms to expectations in most environments.
The system's products and services are consistent with the customer's strategies.	1	Wikipedia provides information that is requested, but has no visibility of the customer's strategies.
TOTAL	12	(This might be called Wikipedia's customer-centricity score.)

Directions for system improvement. The dimensions in Tables 1 and 2 define possible directions for improving almost any IS. For example, deficiencies (or excesses) in customization of outputs or personalization of the information or interface might lead to design decisions that otherwise might have been overlooked. However, the costs of such changes would outweigh the benefits.

Dynamic capabilities. Our definition of CCIS is related to operational characteristics at a particular point in time. Since almost everyone espouses the desirability of being able to change systems rapidly as customer needs and desires change, an alternative interpretation of CCIS might include dynamic capabilities. For an expanded definition to be useful, i.e., as more than an item on a wish list, it would be necessary to specify how dynamic capabilities would be assessed.

6. CCWS or CCIS … Which is more important to customers?

The IS field has a long history of concern with the competitive significance of IS. For example, research on the productivity paradox focuses on whether IT investments increase productivity and profitability. Brynjolffson (2003) and others have concluded that IT investments are somewhat correlated with business results, but that "IT is only the tip of a much larger iceberg of complementary investments that are the real drivers of productivity growth. … For every dollar of IT hardware capital that a company owns, there are up to $9 of IT-related intangible assets,

such as human capital—the capitalized value of training—and organizational capital—the capitalized value of investments in new business-process and other organizational practices."

Similar issues are relevant to understanding the relative importance of CCWS (computer-centric work systems) versus CCIS. In reference to specific systems (rather than work systems as a general case and IS and CCIS as special cases), there are several possible relationships between IS and work systems. In some cases, an information system operates and provides benefits to customers somewhat independent of other work systems. The self-service retrieval of information from Wikipedia is a good example. In other cases, an information system is an integral part of a work system. For example, CRM (customer relationship management) software serves as technology within a variety of work systems such as work systems for finding customers, entering orders, and providing customer support. In those cases, customers receive benefits from a work system rather than from an IS that is an integral part of that work system.

The practical significance of the CCIS concept hinges on the above distinctions. In some situations, a CCIS may be part of a work system that is not particularly customer-centric. An example might be an IS that provides self-service information about past insurance claims, but is part of a larger work system that insured individuals view as anything but customer-centric. From the opposite direction, a highly customer-centric work system may contain or use information systems that are not customer-centric. For example, a doctor's highly customer-centric medical practice may use a billing service that is highly automated and not customer-centric at all. In practice, the customer-centricity of a CCIS may be overwhelmed by the presence or absence of customer-centricity in work systems served by the CCIS.

7. Conclusions

The foregoing lead to the following conclusions about customer-centricity and CCIS:

- Customer-centricity can be defined in a general and straightforward way ("genuinely fulfills the needs and desires of customers") and can be measured in terms of a set of dimensions related to work systems and service.
- In practice, customer-centricity may be a useful characteristic when designing or evaluating an information system. Questions for design and for evaluation concern topics such as the extent to which the IS customizes results, personalizes processes, and uses customer-related information for the benefit of customers.
- Classification of an IS as a CCIS (or not) can be determined by using a numerical scores that combine evaluations along different dimensions of customer-centricity.
- Customer-centricity is best understood as a characteristic of work systems, not information systems. In practice, a seemingly customer-centric IS may be part of a non-customer-centric work system. In such cases, customers will probably pay greatest attention to the work system because it more directly affects benefit capture and customer satisfaction.
- CCIS is most meaningful when an information system (the CCIS) is the work system that affects the customer most directly in the situation being analyzed. CCIS is increasingly less useful when customer-centricity is fundamentally about the work system that the customer sees and experiences, rather than about an IS that is part of that work system.

The idea that systems should serve their customers and should be readily adaptable as customer needs change is nothing new. Customer-centricity of systems is a useful idea because it goes

beyond exhortations about pleasing the customer and maintaining dynamic capabilities. Customer-centricity of systems provides a useful way to think about information systems and other IT-reliant work systems. However, it should always be remembered that the main goal is not customer-centricity, but rather, accomplishing the goals of the customers and of work system participants and owners.

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