

What Does a Service-Dominant Logic Really Mean for Manufacturing Firms?

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Abstract

Service infusion is a major global business trend in manufacturing industries. This means that firms strategically increase their service orientation in order to increase profit margins. In parallel to this development, the service-dominant logic has emerged as arguably the most challenging recent scholarly marketing debate. Positioning service as dominant in marketing logic clearly challenges traditional practice, given that much of marketing theory originated from a goods-dominant view. However, there are several misconceptions of what this logic means, leading to erroneous managerial implications. Therefore, the objective is to (1) explain the distinct difference between a product-service transition and a transition from goods-dominant to service-dominant logic, and (2) discuss what these transitions mean for industry and academia. For example, a transition to service-dominant logic implies much more than an increased emphasis on the firm's product-service systems; it implies a reframing of the purpose of the firm and its collaborative role in value co-creation.

Keywords

Service-dominant logic, Service infusion, Value-in-use, Solutions

1 INTRODUCTION

In industrial markets, services have often been seen as an add-on to the core product offering and as a necessary evil that is needed for future product sales [1, 2]. However, as industries reach a mature stage, commoditization tends to erode the competitive differential potential of product markets. With attempts to remain competitive and avoid a deteriorated financial position, manufacturing firms increasingly turn to the provision of industrial services and solutions such as product-service systems (PSS) [3, 4, 5]. In the last few decades, GE, Ericsson, IBM, Toyota Industries, Xerox, and other leading-edge manufacturing firms have increasingly 'moved downstream'. This so-called service infusion is frequently seen as a transition path from transactional product sales to relational services and solutions provision [6, 7, 8, 9].

In parallel to the growing attention the service infusion phenomenon is receiving in academia (e.g. through special issues and conferences), the Service-Dominant (S-D) logic, proposed by Vargo and Lusch [10] and extended in subsequent works [11, 12, 13, 14], has emerged as arguably the most important scholarly marketing debate for a decade. For example, the seminal paper in which the foundational premises were introduced has been the most cited article in the *Journal of Marketing* the last decade and it has initiated several academic forums and special issues. Vargo and Lusch have put forward their S-D thesis for examination and debate as a possible foundation for evolving a general marketing theory. What they emphasize is how a supplier's knowledge resources and core competencies are fundamental to firms' value propositions, which are the basis for business interactions in networks of relationships. Interaction between buyers and suppliers is critical to understanding their logic, as this is the enabler of innovation and co-creation of value with customers and suppliers.

However, there are many misconceptions of what the S-D logic actually means (see e.g. the *Industrial Marketing Management* (2008) Special Issue on the migration from product(s) to service(s) or the proceedings of the 1st CIRP IPS2 Conference for some examples), leading to

misinterpretations and erroneous managerial implications. Thus, the objective of this article is (1) to explain the distinct difference between a product-service transition and a transition from goods-dominant to service-dominant logic, and (2) to discuss what this means for industry and academia. In the following section, the foundations of S-D logic are introduced and S-D logic is contrasted with Goods-Dominant (G-D) logic. Then, the distinction between the two service transitions is discussed and finally, implications for practitioners and research are presented. Since the article is conceptual, empirical examples from different industries are given to illustrate some of its main tenets.

2 SERVICE-DOMINANT LOGIC AS A PARADIGM

Discussing S-D logic in an industrial context is of undoubted interest due to the increasing strategic importance of services and PSS for manufacturing firms [1, 4]. This has led to calls for integration of goods and services offerings and solutions focusing on the customer's business capabilities [15, 16, 17]. This growing attention to manufacturers' service operations by academics and practitioners alike is most commonly understood as a necessary accommodation of services in today's business world.

However the S-D logic orientation goes further, treating any knowledge-laden interactions between buyer and supplier as a service. In order to better understand the principles of S-D logic, it can be contrasted with G-D logic. The marketing logic that has traditionally prevailed in industrial firms is referred to by Vargo and Lusch [10] as the G-D logic, which they argue, is built on the assumption that economic value is added through industrial processes, embedded in goods, distributed, and then realized in exchange in a transactional manner (i.e., value-in-exchange).

Under S-D logic, on the other hand, goods are seen as distribution mechanisms for service provision. Furthermore, the value of goods is based on their **value-in-use** and determined by the customer, which clearly goes beyond conventional value-in-exchange (i.e., market

value, price). And more controversially, this way of thinking reframes the value-in-use derived from goods as a customer service. In other words, all goods (including raw materials and part-formed goods) are exchanged for their value-in-use, and until 'used up', goods act as service appliances in the hands of a customer. The role of the supplier then becomes that of a collaborative resource integrator and co-creator of value with the customer. One controversial aspect of this agenda underneath the semantics is that every business becomes a service business. That is, the service-ability of goods in use is what is purchased. In S-D logic, service provisioning is what firms do, and customer assessments of value are made in direct interactions with suppliers, as well as interactions with goods. A distinction is made between **operand resources**, which are usually tangible, static resources that require some action to make them valuable and **operant resources**, which are usually intangible, dynamic resources that are capable of creating value [10, 18]. Whereas the emphasis is on operand resources under G-D logic, operant resources are the key to competitive advantage from an S-D logic perspective.

Furthermore, the time logic of marketing exchange becomes open-ended, from pre-sale service interaction (e.g., pre-bid activities such as requirements definition) to post-sale value-in-use (e.g., post-project activities such as post-deployment support and operational services), and may develop further as the relationships evolve [19, 20]. However, S-D logic is not another 'breaking free from product marketing' attempt [21] but a more radical set of propositions which might potentially 'break all of marketing free from manufacturing' [22] (p. 334). The ten foundational premises (FPs) of S-D logic are summarized in Table 1. Some of the premises have profound implications for manufacturing firms (FP1, FP3, FP6, FP7, FP8, FP9, FP10) and are therefore relevant to further discuss.

2.1 The inversion of exchange and the subordination of goods

S-D logic views goods as one method of service provision with **service** as the common denominator of the exchange process, and service is what is always exchanged [23]. Service is defined as 'the application of specialized competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity, or the entity itself' [24]. This inversion of exchange as traditionally understood is illustrated in Figure 1.

Despite goods being subordinated to service in terms of classification and function, goods are not inferior in terms of importance and value because customers are the arbiters of value. For example, the engineering group Sandvik's high technology stainless steel and cemented-carbide tools are distribution mechanisms for service provision that require knowledge-intensive research and manufacturing, and that can have major impact on the customer's value-creating processes. If value creation is in focus, the traditional distinction between goods and services is not relevant. There is a nested relationship that needs to be recognized; the function of goods is to deliver service. Furthermore, as Gummesson [25] states, both things (i.e. goods) and activities (i.e. services) render service, which create value.

Many of the ideas behind the S-D logic are in line with contemporary management and marketing thought in service marketing, relationship marketing, and knowledge management theory, the resource-based view of the firm, network perspectives, and the interaction perspective in industrial marketing. Vargo and Lusch have brought together ideas from different sources and their theoretical

contribution lies in the way these ideas are synthesized [26, 27].

Foundational premise	Comment/explanation
1. The application of specialized skill(s) and knowledge (i.e. service) is the fundamental unit of exchange	The application of operant resources (knowledge and skills), "service," as defined in S-D logic, is the basis for all exchange. Service is exchanged for service
2. Indirect exchange masks the fundamental basis of exchange	Because service is provided through complex combinations of goods, money, and institutions, the service basis of exchange is not always apparent
3. Goods are a distribution mechanism for service provision	Goods (both durable and non-durable) derive their value through use – the service they provide
4. Operant resources are the fundamental source of competitive advantage	The comparative ability to cause desired change drives competition
5. All economies are service economies	Service (singular) is only now becoming more apparent with increased specialization and outsourcing
6. The customer is always a co-creator of value	Implies value creation is interactional
7. The enterprise cannot deliver value, but only offer value propositions	Enterprises can offer their applied resources for value creation and collaboratively (interactively) create value following acceptance of value propositions, but can not create and/or deliver value independently
8. A service-centered view is inherently customer oriented and relational	Because service is defined in terms of customer-determined benefit and co-created it is inherently customer oriented and relational
9. All social and economic actors are resource integrators	Implies the context of value creation is networks of networks (resource integrators)
10. Value is always uniquely and phenomenologically determined by the beneficiary	Value is idiosyncratic, experiential, contextual, and meaning laden

Table 1: Foundational premises of S-D logic [13, p. 7].

2.2 Two views of value: distribution and creation

Under S-D logic, business innovation is repositioned and made possible through value created in co-created offerings. The shift in focus, from producer to customer perspective [25, 28] and then from customer perspective to value-in-use, is a shift from the means of production to the means of utilization. From this perspective, the supplier role is as a resource integrator, and value is always determined by the customer as value-in-use,

whether in direct interaction with the supplier or in indirect interaction through goods in use. Everything else the firm does is resource integration or a **value proposition** [10].

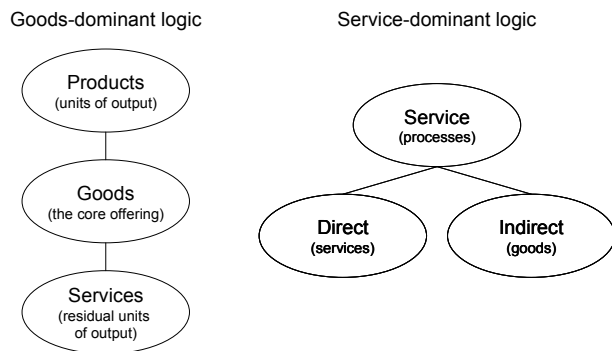


Figure 1: The hierarchy of exchange in G-D logic and S-D logic [20].

Ramírez [29] made a distinction between the prevailing industrial view and what he called the co-productive view of value creation and his comparisons share many similarities with the comparisons between G-D logic and S-D logic made by Lusch and Vargo [12]. In S-D logic, customers are seen as the arbiters of co-created value and suppliers as resource integrators. The comparisons between G-D logic and S-D logic concepts are set out as Table 2.

G-D logic concepts	Transitional concepts	S-D logic concepts
Goods	Services	Service
Products	Offerings	Experiences
Feature/attribute	Benefit	Solution
Value-added	Co-production	Co-creation of value
Profit maximization	Financial engineering	Financial feedback/ learning
Price	Value delivery	Value proposition
Equilibrium systems	Dynamic systems	Complex adaptive systems
Supply chain	Value chain	Value-creation network
Promotion	Integrated marketing communications	Dialogue
To market	Market to ...	Market with ...
Product orientation	Market orientation	Service orientation

Table 2: Conceptual lexicon of marketing [12, p. 286].

Table 2 is not seen as a final lexicon but as one that invites further work; indeed an evolution of ideas [18]. However, the lexicon of key constructs does reflect the dimensions of the cognitive shift involved in any transition from G-D logic to S-D logic. The lexicon does not necessarily imply that G-D logic concepts are discarded. Rather, it suggests how G-D concepts **logically** might be

subordinated to the S-D concepts. For an industrial firm mainly involved in manufacturing activities, these transitional concepts have implications in the form of potential challenges and opportunities [20].

For example, price becomes part of the concept of value proposition, because value propositions are exchanged, one for another. And value-in-use expands the time horizon for a supplier firm to remain involved with the customers' use and experience of goods sold. Marketing to customers dominates conventionally, but under S-D logic, in line with Normann [30], the interactive process of marketing is **with** customers and other stakeholders. Hence, the offering may have a price set or negotiated as part of the value proposition, but this price is not confirmed as value until it is assessed or experienced by the customer in use. In other words, value is not necessarily confirmed at point of sale through the medium of the exchange price.

Marketing with customers to co-create value involves improving a firm's value propositions, supported by supplier resource integration, knowledge, and skills, something which Vargo and Lusch [10] argue is very difficult for competitors to replicate. It involves rethinking the firm's resources application in time and place contexts. Normann's [30] idea of resource density aligns well with S-D logic's concept of value creation through resource integration. Many processes can be dematerialized and traditional enterprises can be unbundled in terms of place, time, actor, and actor constellation, and thereby be re-bundled into new offerings. Further, this re-bundling can be facilitated by interaction and reciprocity between the actors involved, as S-D logic suggests. For example, new generations of microprocessors or telecom networks contain more embedded operant resources than previous generations and therefore enable more opportunities for value creation. Microprocessors have higher levels of density than previous technologies because of the way they enable the mobilization of resources for time-space-actor units. Complex offerings such as electricity supply and other large technical systems which are embedded with more resources in order to increase density have the potential to enhance the suppliers' and customers' competitiveness by increasing their opportunities to create value-in-use [31]. However, this is not a matter of simply following a new instruction manual. What follows are transitional shifts to move from a product (G-D) focus to a service (S-D) focus.

G-D logic	S-D logic
Making something (goods or services)	Assisting customers in their own value-creation processes
Value as produced	Value as co-created
Customers as isolated entities	Customers in context of their own networks
Firm resources primarily as operand	Firm resources primarily as operant
Customers as targets	Customers as resources
Primacy of efficiency	Efficiency through effectiveness

Table 3: Transition for practitioners [18, p. 259].

For practitioners, S-D logic directions are summarized in Table 3. Thus, a transition to S-D logic implies much more than an increased emphasis on the manufacturing firm's product-service systems; it implies a **reframing** of the purpose of the firm and its collaborative role in value co-creation.

3 TWO DISTINCT SERVICE TRANSITIONS

In the light of the dominance and growth of the service sector, and the service infusion in manufacturing firms, one may intuitively interpret the S-D logic as reflecting this major shift. However, S-D logic does not reflect the transition from an industrial era to a service era [23]. Instead, Vargo and Lusch argue that service have **always** been exchanged for service. The idea that goods are embedded with value emerged from economics during the Industrial Revolution (at a time when 'science' equalled Newtonian mechanics) and has ever since been the dominant paradigm [32]. Furthermore, from the S-D logic perspective, manufacturing is a form of service provision. That is, service concerned with the synchronized application of complex, specialized extraction, development, design, management, assembly, accounting, distribution, etc., of knowledge and skills. As Vargo and Lusch observe, 'much of the apparent move to a service economy is nothing more than a further refinement and subsequent outsourcing of these operant resources' [23, p. 45].

Thus, the product-service transition (i.e., service infusion) and the transition from G-D to S-D logic are to be seen as two distinct dimensions; the first one reflecting a strategic repositioning of the manufacturing firm in the marketplace though the addition of new services to its core offering, and the second one reflecting a new perspective on value creation. This means that service infusion and a focus on S-D logic may, or may not, be parallel shifts. It also means that many firms in service industries may have a G-D logic perspective.

For instance, 'marketing continues to point firms toward producing service instead producing goods, rather than providing service. It continues to suggest that all that is needed is a change in the unit of output from the tangible to the intangible. This is a logic that not only misleads manufacturing firms, but one that has misled what are traditionally thought of as service industries' [18, p. 256]. Similarly, a manufacturer that pursues advanced research and developing new products in close collaboration with key customers, suppliers, and other partner firms may be regarded as a product firm rather than a service provider; yet, the manufacturer can have an S-D logic perspective on value creation.

The two distinct transition paths are illustrated in Figure 2. Most traditional manufacturing firms can be seen in cell I. As firms move along the product-service transition line they eventually reposition themselves to cell II. However, firms in cell II focus on 'units of intangible output' rather than providing service for the benefit of the customer. Firms in cells III and IV have an S-D logic perspective and have therefore shifted their focus from products and output (tangible and intangible) to customer-centric value co-creation.

For example, IBM has been developing and implementing a service science business model for which it claims S-D logic as a theoretical foundation, based on thorough research coordinated by its Almaden Research Center in California [20]. Although somewhat simplified, IBM has moved from cell I to cell II over the last decades, and more recently to(wards) cell IV. Due to the strong position that G-D logic has among managers, engineers, and other firm employees, such a sequential transition seems to be the most likely (and perhaps the only viable in many cases) towards an S-D logic perspective. This means that the service infusion can act as a catalyst for increased service focus. Thus, a manufacturing firm without a significant service and/or PSS business is likely to experience major difficulties when trying to shift business logic [1]. One can therefore expect few firms to be positioned in cell III. On the other hand, many service

firms can be found in cell II. This means that although the firm operates in the so-called service sector, it nonetheless has a G-D logic perspective on value and customers (cf. Table 3). In Sweden, for example, triple play services operators such as Com Hem have often been ranked at the bottom in performance satisfaction indexes due to their poor value-in-use (even if value-in-exchange may be high).

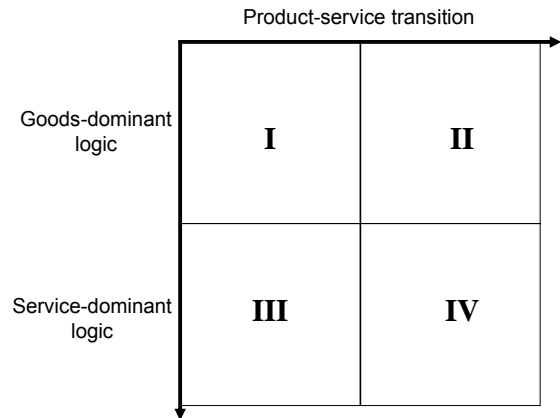


Figure 2: The two distinct service transitions.

4 DISCUSSION AND CONCLUSIONS

4.1 Managerial implications

S-D logic does not imply that firms should focus solely on services and outsource manufacturing activities, which is a common misunderstanding. For instance, even if a majority of the Fortune 100 firms claim to offer solutions the question is whether solutions are a major part of their business or if it is merely a fashion statement. Day [33] claims that it is unlikely that most firms are pursuing a 'true' solutions strategy from the perspective of S-D logic (i.e., cell IV in Figure 2). Instead, most firms are still to be found in cells I and II. This means that firms are far from capitalizing on the value-creation possibilities as they, for various reasons, are still in the rather early stages of the transition to an S-D logic.

Despite being a mindset and perspective on value creation rather than a theory, S-D logic offers some normative guidelines for practitioners [24, p. 415]:

1. The firm should be transparent and make all information symmetric in the exchange process. Since the customer is someone to collaborate with, anything other than complete truthfulness will not work.
2. The firm should strive to develop relationships with customers and should take a long-term perspective.
3. The firm should view goods as transmitters of operant resources (embedded knowledge)... The firm should focus on selling service flows.
4. The firm should support and make investments in the developments of specialized skills and knowledge that is the fountainhead of economic growth.

Symmetrical information exchange

Related to the first guideline, studies of asymmetrical information exchange show that balanced knowledge sharing and symmetrical information exchange is critical for successful value constellations and propositions [34]. The need for symmetric information becomes particularly evident in major industrial partnerships, such as the one between the global technology company ABB and the pulp and paper company Fletcher Challenge Canada Limited (FCCL). ABB signed a full service level agreement with FCCL to service its three Canadian pulp mills. When

signed in 2000, it was the largest-ever full service agreement ABB had undertaken. The two firms created a 50-50 partnership employing 380 people to maintain all of the mills' assets (electrical equipment, automation systems, the boilers for process steam, kraft pulp processing equipment, and pollution control systems).

However, even if an ideal position would be if all information exchanges between firms were symmetric, clearly this is not the case in practice [20]. For example, customers may be more or less willing to share information and also within the manufacturing firm, different functions and business units may be unwilling to share information. Politics and power play can make the idea of symmetric information very challenging in reality. This is clear in research on service infusion, where product and service units have very different cultures and often are unwilling to cooperate [35, 36, 37].

A long-term perspective

Following S-D logic orientation and the open ended time-logic that applies, the second guideline means that the ability to participate in co-creating superior lifetime value-in-use for the customer [20] and to derive an equitable part of that value is vital. A focus on lifetime value implies that firms need to apply a holistic perspective on value creation and customer relationships, and not only view all product and service sales separately and static. It relates to the concept of balanced centrality [38]; that is, that the interests (needs and wants) of customers and other stakeholders need to be secured. Again, however, if customers have a G-D logic orientation it may not only be difficult, but also unprofitable to engage in close, long-term collaboration with some customers [31].

Compared to G-D logic approaches to where the value emphasis is on value-in-exchange, the relative emphasis of the value propositions for customized PSS solutions needs to be based on the customer perceived value-in-use [31]. This requires not only an integrative approach to PSS development, but also a genuine understanding of the customers' unique usage contexts, in which the value is created [13]. It also means that when demonstrating the value of the offering, firms need to have methods and tools in place to show the offering's potential value-in-use convincingly beforehand.

For example, a European manufacturer of outdoor power products developed a number of highly complex spreadsheet applications used to show the value-creating potential of their new PSS offerings, identifying reduced total costs and increased total revenue. However, since these spreadsheets can be too complicated to use for some salespersons, the firm has also developed stripped down versions illustrating key points, such as customer profitability, in interactive diagrams and graphs. More sophisticated methods include case studies from major reference customer and scenarios. Since virtual simulations nowadays are accessible for almost all industries, scenario discussions are becoming more and more interesting, allowing advanced visualizations also for non-technical and non-economic aspects of the offering [39].

New opportunities for innovation

Developing customer and supplier relationships also relate to the third guideline. Under S-D logic, customers and suppliers are potentially part of the co-innovation process. This means that not only active, but also passive customers unwittingly co-design 'patterns of behaviour' that supplier firms can use to improve their offerings. For example, by replacing barcode tags with RFID (Radio Frequency Identification) tags, the new data that is possible to capture can be used to understand such patterns [40]. There are also numerous examples of

explicit co-creative innovation in research and long-term partnerships. Firms like Alstom Transport and Ericsson share information with their key customers in an open, consultative, and informal way at multiple levels across organizational functions (Davies and Hobday 2005). By working together, the supplier and the customer can identify opportunities for innovation in which future value can emerge. However, G-D logic tends to emphasize output, such as production-ready, tangible components without recognizing opportunities for relationship lifetime value creation arising from the process itself. Therefore, S-D logic theory can extend existing G-D views on product development and business innovation [20]. It is however vital that firms recognize the differences between product and service development, as well as the strategic linkages between the two areas [36].

Investments in specialized skills

Finally, the fourth guideline emphasizes a long-term financial orientation that does not necessarily fit well with the short-term financial goals that tend to drive Western capital markets [41]. Financial feedback is a multi-dimensional, long-term oriented metric in S-D logic. It does not equal profit (although it can include profit) as it may include cash flow, market share, sales, growth, etc. [24]. However, despite the normative goal to emphasize value-in-use and customers' long-term well being, for most firms it is difficult to always emphasize value-in-use [31], for example, due to the customer focus on products and transactional exchange value. If that is the case (e.g., that customers focus on a low purchasing price), managers in the supplier firm need to have the ability to understand why this is the case. Explanations may include not only the customer's financial directives or strong budgetary constraints, but also the firm's own poor demonstration of value potential [31].

Furthermore, even if firms have the ability to propose a competitive value proposition and to convince the customer that the firm is committed to the offering, not all manufacturing firms have the organizational capabilities, knowledge about customer processes, and risk-management skills required to pursue a solutions strategy with PSS offerings that focuses on value-in-use [33]. This means that in many cases, investments (both long-term and short-term) in the specialized skills required for the provision of competitive offerings are needed. Unfortunately, PSS managers often struggle internally to allocate the resources required to develop and provide new offerings [36], a situation that has even worsened due to many firms' cost-cutting excesses in the recent financial downturn.

Summary

In opposite to many consumer firms pursuing mass marketing activities, many manufacturing firms in the business-to-business (B2B) sector view customers as resources with whom to interact and focus on offerings with high value-in-use. Albeit by no means a straightforward matter, this means that a transition from G-D logic to S-D logic can be less strenuous for B2B manufacturing firms undertaking a product-service transition than for consumer firms.

To sum up, applying S-D logic as a market orientation also means that the traditional division of goods sales from after-sales services and solutions are no longer discrete functions, and this elevates the strategic importance of lifetime value of the customer relationship, regardless of its combination of services and goods [20]. For practitioners, this has implications for how to organize in order to offer customized PSS solutions. For instance, it means that research and development, sales, service,

finance, human resources, and other local and central organizational functions need to work together [1].

4.2 Research implications

S-D logic shifts the unit of analysis from products to value creation. However, it is a mindset and an organizing framework, rather than a theory [18]. The dominant position of G-D logic in academia and business, and its restricted view on value creation, means that many opportunities for value creation and competitive advantage may be obscured. G-D logic concepts are also commonly used when analyzing service infusion. This may make sense if firms are only changing their offerings through the addition of new services and solutions, but it may be insufficient if firms shift their business focus towards S-D logic. In such cases, the knowledge gained may be limited due to the inadequate constructs used. For example, it is interesting to note that the definition of IPS2 is 'an integrated product and service offering that delivers value in use'. In line with S-D logic, value-in-use (i.e., not only value-in-exchange) is emphasized. However, value is being seen as delivered rather than co-created, a view that obviously has G-D logic connotations.

Even if the service infusion phenomenon is often referred to as a product-service transition, it does not imply abandonment of prior offerings to the benefit of new offerings with higher service content. Rather, firms tend to increase the breadth of the PSS offering which they need to manage and coordinate. In accordance with S-D logic, knowledge (renewal) is regarded as the fundamental source of competitive advantage [10, 19], and the acquisition of specialized skills and knowledge is often a prerequisite for the ability to offer new types of services and PSS. This means that effective organizational learning as well as the ability to unlearn G-D practices and mindsets is needed, which can be difficult. For example, it can be difficult to unlearn things such as a salesman's focus on product sales and a service technician's working method for maintenance and repair activities [1].

A final comment on S-D logic is that the conceptual polarization of G-D and S-D logic is not fully reflected in and supported by studies of service infusion [1]. For example, firms' traditional business logics, which overall are congruent with G-D logic rather than S-D logic, also share some central components with S-D logic, such as viewing customers as resources with whom to interact (rather than as isolated entities which are passive targets of marketing). Not only leading service firms but also many manufacturing firms have highlighted the importance of long-term customer relationships, where social aspects such as trust, commitment, and even friendship links are important ingredients. Thus, the shift from product sales to service provision must not be equated with a shift from transactional routines to long-term relationships.

Future research could investigate in-depth manufacturing firms' transition paths in Figure 2. Since little empirical research has analyzed S-D logic practices, such studies should investigate firm performance, value propositions, offerings, and customer relationships. For instance, it would be relevant to study whether or not there are significant differences in firm performance between firms with G-D and S-D orientations. Furthermore, despite the trend to 'go downstream', there are firms moving in the opposite direction (i.e., focusing more on manufacturing activities) [15]. A better understanding of antecedents and drivers for downstream and upstream transitions is another future research avenue.

5 ACKNOWLEDGMENTS

The author is grateful for the financial support by the Jan Wallander and Tom Hedelius Foundation.

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