

A Study on ICT as a Driver of Service -Based Industry

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Abstract: *Purpose: Information and communication technology, or ICT, is a crucial enabler of new services that focus on processes and products. The article examines how ICT can empower administration separation and in doing so go about as an impetus for a help business direction. Plan/philosophy/approach - A subjective, multi-case research plan with eight global merchandise producers. The findings include the identification of two distinct types of service-oriented differentiation; services that support the client's actions (SSC) and services that support the product (SSP). According to the study, SSC have the greatest positive effect on businesses' service business orientation. Limitations and implications of the study: Western companies in a select number of industries are examined. Moreover, the assistance business direction build remembers no estimations of administration productivity or effect for generally speaking upper hand. Practical implications: Successful businesses are more likely to use ICT to pursue both SSP and SSC differentiation traits. The presented framework assists managers in comprehending both the key specifics of the two options and their interdependence. Originality and value: The study specifically focuses on the enabling role of ICT for new services and its effects on each of the three dimensions of the service business orientation construct, which contributes to service strategy theory.*

Keywords: Modern administrations, ICT, administration business direction, administration direction, separation, servitization

I. INTRODUCTION

Value creation is becoming increasingly dependent on the collection and utilization of informational content rather than tangible benefits thanks to new information and communication technology (ICT). "The service revolution and the information revolution are two sides of the same coin," according to Rust (2004) The fact that leading companies in a variety of industries have added services to their existing product offerings over the course of the past few decades is one manifestation of this so-called service revolution; Services in support of the customer's action (SSC) and services in support of the supplier's product (SSP) are examples of these kinds of services Both of these types of services can be geared toward improving the efficacy of the product that is being provided. ICT frequently plays a significant role as an enabler for a product-service transition in this "servitization" process (Neu and Brown, 2005; 2007 by Penttinen and Palmer; 2000) Shepherd and Ahmed ICT is used by manufacturers like Rolls-Royce and SKF, as well as IT companies like IBM, to add services to their existing offerings to create value and sustain a competitive advantage. Penttinen and Palmer (2007) show that ICT enables both deeper relationships with customers and more extensive service offerings, such as integrated solutions, in their analysis of manufacturers' servitization. That is, companies use ICT to differentiate themselves by offering services. The business strategy should be more service-oriented if services are given more weight.

The three dimensions of service business orientation (SBO), as defined in 2002b, are as follows:

- i) the quantity of administrations offered,
- ii) the quantity of clients to whom the administrations are offered, and
- iii) the accentuation put on the administrations.

The firm's SBO is positively correlated with these four dimensions. The transition process has been the focus of previous research on servitization (Mathieu, 2001b; 2008 by Matthyssens and Vandenbempt; Service strategies

(Gebauer 2008; Penttinen and Palmer 2007; Kowalkowski and others, 2012; Organizational structures (Davies et al., 2007; Kumar and Markeset, 2007) 2007; Gebauer and Kowalkowski 2012; Neu and Brown 2005). However, ICT's role as an enabler of new services and its impact on the firms' service business orientation have not been the focus of prior research. The study by Froehle et al. in 1998 by Matthyssens and Vandenbempt on how to create a competitive advantage in industrial services is one notable exception. 's (2000) assessment of key activities decisions for new assistance improvement viability and Homburg et al. 's (2002a) study of the factors that influence service strategy implementation. Against this foundation, the goal of this study is to examine the way in which ICT can empower administration separation and in doing so go about as an impetus for a help business direction. We make use of service orientation theory and industrial services (such as Antioco et al., 2008; Homburg and others, 2002b; Mathieu, 2001a) to plan a hypothetical system for dissecting the effect of ICT on help business direction. The presentation includes case studies from multinational manufacturers. In an effort to differentiate their offerings based on factors other than price, these businesses have utilized ICT to create new services and enhance their competitive advantage. The hypothetical system is connected to case information and impacts on the organizations' administration business direction are analyzed. According to our findings, manufacturers' service business orientation can be positively influenced by ICT, but the effects depend on the type of services provided (SSP or SSC).

The ability to use information and communication technology (ICT) for services is a crucial resource for successful competition in markets that are becoming increasingly complex (Neu and Brown, 2005). Based on explicit service quality, proactive and integrated solutions, and timely, empathic design of new services, Matthyssens and Vandenbempt (1998) argue that ICT is an important asset for creating superior customer value. When having significantly better control over the IT infrastructure, new services can be introduced into the market more quickly, according to previous research (Froehle et al., 2000; Menor and co., 1998). Building a service system and enhancing service quality excellence necessitate controlling the IT infrastructure (Zeithaml and Bitner, 2000).

Consequently, ICT empowers better help conveyance and prompts worked on cross-utilitarian correspondence and administration arranged business methodologies (Antioco, 2006). In addition, by injecting more value into the value-creating processes of customers through new services, ICT enable businesses to both reduce costs for providing services (i.e., internal efficiency) and increase service revenues (Anderson et al., 2001). 1997). For instance, ICT can work with for firms managing high variety of interest, and it very well may be an instrument for data sharing and data gathering on item utilization and client needs (Jong and Vermeulen 2003). According to Kowalkowski and Brehmer (2008), new services that emphasize value-in-use can be made possible by gathering and processing real-time data on the installed base's condition and utilization. Differentiation lies in the new practices made possible by ICT because ICT is rapidly becoming a commodity and is not itself a differentiator (Carr, 2003). Contenders can rather effectively mirror exercises, cycles, or even single hierarchical components

There has not been sufficient research on the various types of industrial services and service business orientation. 2008), with the exception of The application of ICT to enhance competitive advantage through service differentiation is examined in order to investigate these connections. **2 Differentiation through services** - a classification An important distinction can be made between SSC - services that support the customer's action in relation to the firm's product, such as customer training or consultancy 7 services - and SSP - services that support the firm's product, such as maintenance, repair, and other after-sales services (Antioco et al., 2008; 2001a, Mathieu; Ulaga and Reinartz, 2011). SSP's primary objective is to make it easier for customers to access the product or to guarantee its installation, use, and brokering. On the other hand, SSC's primary objective is to assist the customer in maximizing all of the product's various business and production processes, actions, and strategies. Thus, while SSP are intrinsically item situated, SSC are process-arranged. Consequently, separation through SSC requires skills other than through customary SSP; The service provider must be aware of the ways in which the customer's processes are affected by the product and how these processes can be improved. According to Mathieu (2001b), SSC is a "service as a product," which means that customers can try the service without purchasing the product. Companies that choose to compete primarily through SSP are more likely to place the product at the center of their value proposition, whereas SSC are by nature customer-focused and can offer products independently. According to Penttinen and Palmer (2007), information and communications technology (ICT) has the potential to play a pivotal role in both SSP and SSC differentiation. This is because ICT can be a key enabler of both deeper customer relationships and more extensive service offerings and product-service combinations. There are

four main ways to compare the two kinds of services: the primary marketing variables, the direct recipient of the service, the degree of customization, and the intensity of the relationship (see Table 1). In the case of SSC, the product is the direct recipient of the service, whereas in the case of SSP, it is a person within the customer organization.

The power of the relationship as far as the likely number of representatives and divisions included and the level of coordinated effort, responsibility, and trust, is low for SSP contrasted with SSC (Oliva and Kallenberg, 2003; 2011 by Ulaga and Reinartz). Additionally, SSC are highly customized, whereas SSP are highly standardized (low customization). Finally, the process—a precise and cost-effective flow of service activities—and the physical evidence—the tangible products and equipment that facilitate service performance—are the primary eight marketing variables for SSP. For SSC, then again, the dominating showcasing variable is individuals, which incorporates both the supplier's and the client's faculty

Service business orientation Companies can improve their service business orientation by concentrating on SSP, SSC, or a combination of the two (Antioco et al., 2008). Regardless of concentration, in any case, SBO can be characterized as "an association wide embracement of an essential arrangement of generally persevering through hierarchical strategies, practices, and techniques planned to help and reward administration giving ways of behaving that make and convey administrations greatness" (Lytle et al., 1998, p. 459). It is operationalized as a build comprising of three interrelated, yet various aspects (Homburg et al., 2002a; 2002b): i) the variety of services offered, ii) the variety of customers for whom those services are made available, and iii) the significance attached to those services. Therefore, the SBO construct cannot be represented by a single dimension. All three are required to fully represent the concept, so businesses must take them all into account when making strategic decisions about their service businesses (Homburg et al., 2002b). The provision of services is the first requirement for SBO; A business that doesn't offer any services at all cannot be service-oriented.

Consequently, taking everything into account, the more administrations a firm offers, the higher SBO it is considered to have (Homburg et al., 2002b). Similarly to Anderson et al. 2007), managers must evaluate their service portfolio and decide which existing services should be offered (either as a standard or an option), which should not be offered, and which new services should be developed. Second, the firm should choose what clients it ought to offer administrations. For instance, giving the biggest clients exceptional treatment through key records the board implies that these clients can be offered extraordinary administrations (Brehmer and Rehme, 2009). Be that as it may, if by some stroke of good luck a restricted gathering of clients are offered administrations it doesn't mirror a high SBO. Other things being equal, the SBO is higher when more customers are offered services (Homburg et al., 2002b). Last but not least, the company must also emphasize its services in order to achieve a high SBO; that is, effectively offer administrations to its clients. Contrasted with the quantity of administrations offered, the accentuation on administrations mirrors a conscious, proactive decision and, in this way, more emphatically shows a shift from item to support direction (Homburg et al., 2003). In business practice, producers would in general market and sell administrations not methodically yet rather do this in a responsive way just when a few clients unequivocally called for them (Kindström and Kowalkowski, 2009; Kowalkowski et al., 2012).

As a result, these businesses have not had a high SBO because they have focused less on services. All other things being equal, the company's SBO is higher the more it emphasizes its services.

Procedure Because of the fundamental and complex attributes of SBO and impacts of ICT, we picked a subjective contextual investigation way to deal with and answer the topic of how ICT can go about as an impetus for administration business direction (Edmondson and McManus, 2007). Eight multinational capital equipment manufacturers of Swedish and Swiss ancestry provide the empirical data. The organizations work in a wide assortment of enterprises, like computerization arrangements, transports, cutting devices, outside power gear, proficient clothing frameworks, siphons, and distribution center trucks. The trend of product commoditization, which makes service differentiation a crucial strategic option, and the growing use of ICT as an enabler for new services are common denominators among the chosen businesses.

Companies that met four primary requirements were selected:

- i) the firm is an industry market pioneer,
- ii) the firm seeks after separation systems,
- iii) the firm purposes ICT to increment upper hand however administrations, and

iv) admittance to key witnesses was given.

We used data from interviews, focus groups, and archival sources like internal reports and secondary articles to try to triangulate for each case. We used customers and highly knowledgeable informants from various departments, groups, and levels of hierarchy. A greater part of the witnesses were focal and neighborhood administration chiefs, application subject matter experts, and overseeing chiefs. The respondents were free to use their own words to answer the open-ended interview questions.

Due to the fact that the majority of the managers were in similar positions within their organizations and none of the businesses they represented were competitors, inter-firm focus group discussions with and between the managers were regarded as extremely sincere and constructive. As indicated by information redundancy, the sampling process came to an end at saturation. The information investigation was an iterative cycle matching hypothesis and reality, where benefit of the efficient consolidating of both the exact world and the hypothetical models was taken. Dubois and Gadde (2002) name this cycle 'abductive' and it tends to be described as alternating between the information and the hypothesis, making productive cross-preparation. To fortify hypothesis triangulation, we utilized various groups of writing (primarily modern showcasing, administration the board and promoting, and vital administration hypothesis) as means to decipher the discoveries. As Gibbert et al. recommend, (2008), the interview transcripts were reviewed by key informants, and a draft version was reviewed by peers. In the beginning, detailed case study write-ups for 11 firms and an analysis of data within each case were done to find case-specific patterns.

Each company's respondents received the write-ups as well, and while most of them agreed with the overall structure and content, a few made minor suggestions that were incorporated into the revised versions. A contextual analysis convention was utilized and a contextual analysis data set with all suitable meeting records, contextual analysis reviews, and different reports was assembled to increment dependability. A cross-case comparison followed. Following the systematic combining procedure, the data were regrouped into similar themes based on the research constructs and theoretical framework. By means of Piekari et al. According to 's (2010) definition, these methods for increasing validity and reliability can primarily be referred to as "best practice" (purposeful sampling, theory development, informant selection criteria, etc.). with elements of "common" practice, such as interviews, exploratory studies, and the like and "innovative" practice in case research, which is an abductive method.

II. FINDINGS

Service business orientation and ICT-enabled services In this section, we begin by illustrating two characteristics of how manufacturers use ICT to compete through SSP and SSC. We discuss the effects of ICT-based service differentiation on SBO and how ICT has enabled service development. Then, we examine the impacts of ICT on help separation. Finally, we investigate the effects of ICT-based services on SBO by connecting the service differentiation options (SSP and SSC) to SBO (Matthyssens and Vandenbempt, 2008).

Impacts of ICT on SSP and SSC

Investigation of the eight makers affirms earlier examination that ICT refines and broadens the organizations' center business (Kraemer et al., 2000) and is utilized internally with a focus on cost reduction and efficiency as well as to create value for customers by integrating online applications and technical capabilities with business processes (Huizingh, 2002). By lowering the cost of maintaining an existing relationship and broadening it with the addition of new services, ICT can also make it possible to improve customer-provider relationships. According to Kindström and Brege (2008), numerous service-related ICT initiatives have historically focused on lowering transaction costs and increasing internal process efficiency. This has resulted in an increase in the internal efficiency of the services provided by the case firms by reconfiguring existing service processes through the use of ICT. It has been demonstrated that back-office processes in particular can be automated or eliminated (Kowalkowski and Brehmer, 2008). Since automated order processes typically reduce costs for the customer as well, the latter also has positive effects on the customer in the most successful instances. This may result in modifications to the design of the service system, which may in turn improve the quality of the process.

The efficiency of the process may also increase if the service system is more reliable. Mobile devices for service workers, standardized, multinational information systems, direct billing, and transaction-efficient service order handling

are all examples of mechanisms that affect efficiency. Such drives imply moderately low dangers, don't need a far reaching comprehension of the innovation among top administration, and the expense decreases permit a somewhat clear and quantifiable profit from speculation.

It is possible to observe a shift in investment focus from primarily internal process efficiency to service differentiation as businesses mature and become more accustomed to the use of ICT. This shift matches the overall servitization process and expanding administration business direction that happens continuously in the producers. At first, SBO was low and more about covering service costs than making services different from one another; the expense inclusion pointed toward supporting the item cost premium. However, in recent years, service differentiation has become increasingly important to the case firms' competitiveness. This has encouraged ICT-enabled service differentiation and, as a result, increased firms' SBO, along with the rapid development of ICT. ICT significantly affects the SSP choice in laying out separated contributions, particularly to new clients. This is because the majority of businesses traditionally place an emphasis on tangible features, such as what is technically feasible to achieve. The majority of the time, ICT-based SSP are developed in an inside-out manner that is comparable to traditional product development. That is, ICT is used to create new SSPs based on what is technically possible rather than necessarily what customers need or create value for. However, a lot of profitable SSPs are able to successfully extend and complement the existing portfolio of offerings, resulting in improved service quality, product efficacy, and lower customer costs. There is an extensive variety of nonexclusive SSP that are empowered and worked with by ICT, for instance remote checking and control, item use report bundles, preventive support arrangements, and armada the executives frameworks. Businesses now have a more accurate foundation for proactive, higher-quality operational and maintenance services as more and more information about product usage can be collected wirelessly in real time.

There are a lot of activities in the SSC option that help improve relationships with customers. According to Normann and Ramrez (1994), this indicates that businesses are using ICT as a vehicle for value creation by relieving customers (i.e., lowering costs) and enabling customers' businesses (i.e., increasing productivity) in addition to creating new services. ICT-based SSC can be offered to both existing and new customers as stand-alone unbundled services or as part of existing bundles. In addition, ICT makes it possible to collect usage data in real time, which is essential for providing advanced solutions like outcome-based contracts with dynamic pricing.

Tools for customer training, technical consulting, and process optimization are among the less extensive ICT-based SSC. 4.3 Effects of ICT-based service differentiation on service business orientation The effects of ICT on SBO can be seen to vary depending on which of the service differentiation options are being considered. In addition, the effects differ across the three dimensions that make up SBO; that is, the quantity of administrations, number of administration clients, and accentuation of administrations. ICT empowers the advancement of new SSP however these are not be guaranteed to new independent administrations. For instance, more definite client reports about their introduced base might be presented in association with existing help contracts as opposed to presented as a different help. SSP-enabled benefits for customers like lower operational costs, improved predictability, and information on product performance and usage in customer operations make value propositions more appealing. These new assistance clients have beforehand not tracked down any motivations to purchase administrations from their item providers. All things considered, numerous clients have played out the administrations in-house or have bought them from outsider specialist co-ops. However, as the manufacturer's SSP becomes more competitive, more customers request them.

As a result, numerous ICT-based SSP result in new service customers. However, the manufacturer's service emphasis is typically lower than that of SSC due to SSP's inherent focus on manufactured products. That is, supervisors view the association's center proposing to be the items, which are expanded with administrations supporting the item. With respect to, makers are continually finding new ICT-based administrations conceivable to offer. As far as SBO, the test may rather be to track down new help clients, as the showcasing and selling of SSC requires more top to bottom information on the clients' activities contrasted with SSP deals. SSC generally require closer relationships between customers and suppliers (trust, commitment, adaptation, etc.) with some exceptions, like basic training services. versus SSP (Antioco et al., 2008). As a result, not all product customers are ready to purchase SSC and become "service customers." Nor are clients fundamentally offered all SSC. Large and strategic customers may receive individualized treatment and services that are co-developed with specific customers and not made available to a wider range of customers. In addition, many customers purchase SSP prior to SSC, which is consistent with the service transition

analogy. Because they purchase SSP (as well as products) from the company, many potential customers of the new, ICT-based SSC are already service customers. By the by, makers bring the likelihood to the table for SSC to clients other than the ones purchasing items and SSP (Mathieu, 2001a), in spite of the fact that our example shows that this rarely is the situation practically speaking. As a result, SSC's impact on the new customer dimension of SBO is less significant than SSP's. Last but not least, SSC places a greater emphasis on service than SSP does, and many manufacturers use ICT-based SSC to promote their favored strategy of becoming more service oriented or even to claim (true or false) that they already perceive themselves as service providers primarily. Homburg et al.'s findings are supported by this study.

According to a quantitative study conducted in 2003 on manufacturers' service-oriented strategies, a focus on services has a greater impact on SBO than the number of services offered. That is to say, businesses need to actively sell and market their services to customers. SSC have the greatest overall positive impact on manufacturers' service business orientation.

III. CONCLUSION

A limitation of this study is that, due to its qualitative nature, it does not provide any quantification of the effects of ICT-based service differentiation on manufacturers' service business orientation. In this way, joining subjective and quantitative examination philosophies could help evaluating the complicated connections between the ICT-based assistance separation and SBO develops. Furthermore, Homburg et al.'s definition of the SBO construct (2002a; 2002b), incorporates no estimations of 'achievement, for example, administration benefit or the effect of administrations on in general upper hand, future exploration ought to likewise consider this aspect. The study's analytical generalizations only hold for high-volume manufacturers in B2B settings because it is context-bound. Since the observational information comes from global firms situated in Europe, standing out this review from concentrates on different businesses and nations can test the adaptability of our discoveries. 5.3 Practical Implications Our research demonstrates the effects of ICT-based service differentiation on service business orientation for managers. ICT is rapidly becoming commoditized, and the rapid technological development 20 means that ICT is neither a key constraint for new offerings nor a differentiator in and of itself. Instead, the challenge is frequently to keep up with technological advancement and emerging opportunities, maintain internal alignment, and link technological possibilities to customer needs that have been expressed and latent. Even though ICT-based services have the potential to boost provider and customer competitiveness, realizing this value can be challenging. Many promising services fail due, among other things, to managers underestimating the difficulties of large-scale implementation projects and the difficulties technology-focused manufacturers face in fully comprehending the complex business needs and actual user requirements of potential customers (Flowers, 1996; (2010) (Bradley and Davies). Therefore, managers ought to keep in mind that a strategic move to increase SBO through investments in ICT necessitates critical resources and capabilities, as well as a business rationale and strategic congruence. Top management's support for putting more emphasis on services is particularly important if the company is to increase its SBO. Despite the fact that ICT-based SSC have the greatest positive impact on companies' service business orientation, managers must be aware that placing an increased emphasis on the SSC business typically requires a more radical change from top to bottom and a more difficult strategic move than placing an emphasis on SSP. In point of fact, successful businesses are likely to pursue both options for service differentiation to varying degrees.

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