

CONNECTING SERVICES TO PRODUCT (GOODS) DEVELOPMENT: A STUDY BASED ON STRATEGIC ORIENTATION AND CUSTOMER EXPERIENCE

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ABSTRACT

This paper provides the preliminary analysis based on the survey which we conducted on Strategic Orientation (SO) and Customer eXperience (CX) issues. The results indicated that both understanding, and business perspectives are important. The findings also show that especially in designing human-based services, the view based CX should be emphasized. In addition, regarding goods design, CX was considered more important than the comprehension of the SO.

INTRODUCTION

The disciplined approach of focusing on customers and continuous improvement was initially emphasized in the 1950s by the principles of the Total Quality Management (TQM) (Deming, 1986). Similarly, more recent approaches emphasize user-oriented design as an iterative design process in which designers focus on the users and their needs in each phase of the innovation and design process (Siakas and Siakas, 2016). In many software development approaches, such as Agile development (Lampropoulos and Siakas, 2018) and DevOps (Lampropoulos *et al.*, 2019) even customers take an active role in the development process. It is generally accepted that the voice of the customer plays an important role in the success of product and service innovation and has turned out to be an effective way for value creation and competitive advantage (Siakas and Siakas, 2016). Nowadays, due to the immense competition in the field of innovation, intensified CX is mainly materialized through strategies including social networking, crowdsourcing, open innovation, artificial intelligence (AI), Internet of Things (IoT) and Big Data. A holistic approach needs to be catered for in order to provide innovations in the increasingly demanding global market (Sivula and Kantola, 2016). The added value of offering a good CX include improved customer loyalty, increased customer satisfaction, enhanced word-of-mouth marketing including positive reviews and recommendations (Colomo-Placios *et al.*, 2014). Value of any service is created, comprehended, and defined by the customer / user in the case of service use, also called value-in-use (Siakas and Siakas, 2016).

Product development should be customer-oriented while products should be derived from the strategy of a company. Hence, customer orientation needs to be taken into consideration in strategy development. In this process, the use of a business model helps notably. By using business models, we can create products that have services at their core.

Morris (2013) argued that in order for both continuous and discontinuous types of innovations to be developed in companies, business models should be considered as the third dimension of innovations. Through the use of business modelling, product innovations can be connected to the necessary services seamlessly throughout the whole product life cycle.

In the current era of the 2020s, the technological advancements and particularly the rise of AI, IoT and Big Data resulted in the development of intelligent, autonomous and automated services that led to fourth industrial revolution, called Industry 4.0 (Lampropoulos *et al.*, 2018). As the use of bots in the service business has been significantly expanded, the majority of services are no longer human-based which, in return, brought about drastic changes to the overall customer experience (Ameen *et al.*, 2021). However, all services cannot be replaced by enforcing technology-based solutions. Thus, it is essential to examine which services and to what degree can remain human-based and which services can be automated. From a

business perspective, product and service development can be assessed according to two perspectives: strategic orientation (SO) strategy and customer experience (CX). Furthermore, in order to create successful product and service innovations, as well as successful business models, it is necessary to understand both related strategic viewpoints and customers' perspectives (Pisano, 2015; Keiningham *et al.*, 2020).

Based on the above-mentioned points, the following questions arise:

- what the role of SO in developing goods-service innovations is;
- what the role of CX in developing goods-service innovations is;
- what the role of SO in developing visible goods is;
- what the role of CX in developing visible goods is;
- what the role of SO in developing human-based services for visible products is;
- what the role of CX in developing human-based services for visible products is;
- what the role of SO in developing automated services for visible products is;
- what the role of CX in developing automated services for visible products is.

In this study, the theoretical background along with the discussion on product-service alignment is presented. The concepts of strategy orientation and customer experience are described. Moreover, the research questions, the methodology and the results are presented and analyzed. Finally, suggestions for future research direction are provided.

ALIGNING PRODUCTS AND SERVICES

Kohtamäki *et al.* (2015) emphasized the shift toward service-orientation in developing and delivering traditional industrial goods which had co-creation with customers as its main point value. As good service enables increased sales and profits for a company, it is of great importance to comprehend what the main elements and essence of the core product are. This process can be greatly affected by applying the correct strategies. Modern business strategy emerged as a field of study and practice in the 60s (Minzberg and Quinn, 1996). Porter (2001, p. 71) defined strategy as “*how all the elements of what a company does fit together*”. He argued that taking the business model into isolation from the company's strategy may be an obstacle to certain advantages of the company. Instead, the company should cater for a clear emergency backup strategy ready to modify the existing business model in case of different eventualities. A company is constantly exposed to new competitors and substitute products and therefore, it needs to continuously improve and innovate. Furthermore, strategy usually involves two major processes, namely strategy formulation and implementation of the chosen strategy, which aim to accomplish the long-term objectives of the company. The strategy implementation converts the selected strategy into short term goals, plans, and actions that the company should take so as to achieve the objectives. Project failures have frequently been attributed to misalignment of strategic aims and project management (Becker and Bostelman, 1999; Kaplan, 1994; Sheriff *et al.*, 2013). Projects invariably fail when the company fails to translate vision and mission statements into tangible plans and actions applied at different levels. A number of frameworks for addressing this misalignment at different levels have been proposed, such as Balanced Scorecard (BSC) developed by Kaplan and Norton (1996a; 1996b) and Goal-Question Metric (GQM) developed by Basili (1992; 1995). While the BSC defines the scope and four perspectives of a company's information needs by using Key Performance Indicators (KPIs) for measuring the success of the agreed goals, it does not provide a means of quantifying and interpreting the acquired information. On the contrary, the GQM proposes that the goals must be traced to the data that is intended to define the goals operationally. Sheriff *et al.* (2013) combined BSC with GQM in order to bridge the gap by providing companies a more comprehensive and holistic framework for planning, organizing, monitoring and controlling their performance at all levels. The key selling point of the BSC over the years has been that it provides a comprehensive strategic roadmap for effective competition. They further enhanced the business model with an explicit value model, aiming to guide the definition and evaluation of specified KPIs.

Da Silva and Trkman (2014, p. 9) asserted that “*theoretical grounding should be able to explain both the observed trends receiving scholarly attention as well as establish a clear distinction among existing terms within the literature*”. They quoted that business models refer to our understanding of how business works and how value is created for different stakeholders; hence they refer to the transfer of the selected strategies into the every-day business activities (Da Silva and Trkman, 2014).

A business model consists of four components (Osterwalder and Pigneur, 2002). These are product innovations, customer relations, infrastructure management and financial issues. By understanding these components and applying them in the right context, it is possible to create a sustainable business model. The customer relations are considered to be the main component, because it connects services to products. Our approach to business model is predominantly CX driven.

CONNECTING STRATEGY AND CUSTOMER EXPERIENCE

Business models emphasize the significance of customer strategy and as it was mentioned above, business models derive from SO. Therefore, it is essential to study both SO and CX so as to find the main components that lead to good product-service alignment.

Keiningham et al. (2020) presented a model in which business modeling was approached from both CX and SO perspectives. More specifically, according to Keiningham *et al.* (2020):

CX includes the following elements:

- Cognitive (How all needs are satisfied);
- Physical (How this service helps you);
- Sensory (What kind of feelings you have after using the service);
- Emotional (How good the atmosphere is in a service);
- Social (How services support interaction).

While SO involves the following alternatives:

- Cost leadership strategy;
- Differentiation strategy;
- Differentiation focus strategy;
- Cost focus strategy;
- Hybrid strategy.

OUR STUDY

In this study, the important factors in goods and service design are explored based on students' views and attitudes. The main aims were to find out:

- What technology companies should be aware of when designing products overall, and
- What instructors especially should take into account when creating teaching approaches for their students.

Based on the CX driven business model described in the previous section the major variables were:

- CX in general;
- SO in general;
- CX in product design;
- SO in product design;
- CX in human-based service design;
- SO in human-based service design;
- CX in automated service design;
- SO in automated service design.

In total, fifty-two master students, 9 females and 43 males who had mean working experience of 10 years, took part in this survey. Particularly, 40 of the students who participated were from three different higher education institutes in Finland while the other 12 were from a higher education institute in Greece. The data collection process involved the use of an online questionnaire which was uploaded on the Webropol platform as well as the use of a paper-based one. The respondents rated each item (variable) of non-functional attributes on a Likert scale of 1 to 5 where 1 mean "not at all important" and 5 meant "extremely important".

Statistical analysis was made on SPSS.

ANALYSIS OF DATA

Table 1 shows the means of the responses concerning the general variables.

Table 1: Variables

Variable	Mean
CX in general	3.81
SO in general	3.77
CX in product design	4.04
SO in product design	3.63
CX in human-based service design	4.31
SO in human-based service design	3.54
CX in automated service design	4.06
SO in automated service design	3.70

The Kolmogorov test showed that the data based on the responses of the students concerning the themes in this study agreed with the normal distribution. Thus, the T-test was appropriate for statistical analysis of the data. The results of these T-tests are shown in Table 2.

Table 2: Comparing CX and SO means

Variable	p
CX in general versus SO in general	.791
CX in goods design versus SO in goods design	.046
CX in human-based service design versus SO in human-based service design	.017
CX in automated service design versus SO in automated service design	.490

Moreover, the role of CX in product development in two different types of service development was compared. The results of these T-tests are shown in Table 3.

Table 3: Comparing CX means

Variable	p
CX in goods design versus CX in human-based service design	.829
CX in goods design versus CX in automated service design	.221
CX in human-based service design versus CX in automated service design	.205

DISCUSSION

The results of this study highlight the importance of CX in the development of goods and human-based services. Furthermore, the findings showcased that developing automated services that focus on CX is less important compared to those that focus on SO. But when it comes to the product design process and the development of new products, the overall CX is more important than the comprehension of the SO. Since the respondents were technology students and not product producers, they obviously answered the questionnaire from a customer viewpoint opposed to a production viewpoint. The CX interprets the customers overall perception of a company, based on the result of every interaction a customer has with the company, from navigating the website to talking with customer service and receiving the product or service purchased. University students are usually early adopters of innovation. Their CX is mainly based on online shopping, particularly during this last year of the COVID19 pandemic. Our results confirm the power of the customer. The SO needs to focus on CX and embrace it in business models and strategic flexible measurable maps that can swiftly be adapted to changing circumstances for increasing value-in-use.

The two views of product and service development can be easily combined. SO provides basic ingredients for creating business models and looking at CX ensures the success in the goods/service business. In this way, product/services alignment can be achieved.

In addition to CX, it is important to study customers' perspective in the context of value-creation, because in the long run maximizing is a crucial goal. The study by Osterwalder et al. (2009) provided a framework describing the main relative sources that create additional value. These sources include newness (value offerings that satisfy an entirely new set of needs), performance (acting more efficiently and effectively overall by doing things better with fewer defect, faster, with fewer resources), customization (tailoring products and services to the specific needs of individuals or customer segments), "getting the job done" (creating value to customers by helping them with particular things), design (aesthetic styling to fit with fashion trends, designing for modularity of or fewer components for easier assembly, designing for environmental friendliness, branding or status (customers may want to show society certain aspects of themselves), , price (similar value products and services at a lower price), cost reduction (through online customer relationship management application, online recruitment or an online accounting software package), risk reduction (employing warranties, guarantees or service level agreements), accessibility (making products and services accessible to previously untapped customer segments), and convenience or usability (making things more convenient or easier to use).

FUTURE WORK

Future work will include more detailed analysis on SO and CX issues related to product and service alignment. Particularly, each feature of CX related to goods and service alignment and development will be looked into. We will focus on product and service producing companies and examine their viewpoints, opinions, and practices. Due to the fact that automated services are becoming more and more popular and common, special attention will be paid to their design and development process in the light of the framework presented by Keiningham *et al.* (2020).

Another future aim is to test the value model developed by Sheriff *et al.* (2013) on a customer level to understand how value of any service is comprehended, defined and created, by the customer / user in the situation of service use (value-in-use). The model takes into consideration the continuous interaction of three forms of value, as described by Morris (2013), namely Conceived Value (believe that/anticipate), Object Value (physical features) and Operative Value (like/dislike). These manifestations of value tend to originate from subjective, objective, and interactive sources respectively, and by interacting with each other, they actualize a complex value system that can alert managers and organizational evaluators regarding the variety and interacting complexity of value sources and manifestations.

Additionally, it is essential to loop into various software development issues. Huikkola *et al.* (2021, p.10) have clarified that "*managers should align innovation processes for product, service, and software innovation to facilitate the development of smart solutions. Such a synchronized model provides a common platform and base logic to be fine-tuned by managing the underlying practices and routines to nurture different business units and product line collaboration*".

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