

Title	ビジネスイノベーションのための知識志向のサービス 化マネジメントの研究
Author(s)	Belal, H. M.
Citation	
Issue Date	2015-03
Type	Thesis or Dissertation
Text version	ETD
URL	http://hdl.handle.net/10119/12756
Rights	
Description	Supervisor:白肌 邦生, 知識科学研究科, 博士

A Knowledge Focused Servitization Management for Business Innovation

H.M.Belal

Japan Advanced Institute of Science and Technology

Doctoral Dissertation

A Knowledge Focused Servitization
Management for Business Innovation

H.M.Belal

Supervisor: Associate Prof. Dr. Kunio Shirahada

School of Knowledge Science
Japan Advanced Institute of Science and Technology

March 2015

Abstract

During the last two decades, there have been remarkable changes in the world business environment. Firms have realized the importance of service to sustain as well as to innovate their business. Consumers desire service-based value through a knowledge co-creation process rather than the manufactured goods itself. This has instigated a big task of traditional manufacturers to create knowledge, and adapt to such trends and create new business line-ups. It is suggested that, manufacturing companies need to have value chain perspective and should adapt in its business the opportunity of servitization. While there are several definitions of servitization, we put emphasis on a servitization is *as the transition process of adding service concepts into product-based business in manufacturing companies*.

Servitization is a new way of thinking for traditional product-based business and managing it successfully into creating a new business is a difficult challenge. The servitization needs to develop new service in-terms of knowledge co-creation process, which includes organizational knowledge management, human resources education, and inter-organizational relationships. Therefore, a system to manage innovative knowledge and create customers desire service as value is also necessary for firm.

However, there are not enough research above can offer a verified way related to knowledge focused servitization management, which facilitates the dealings of knowledge management, skill development and corporate collaboration to create new knowledge for service as paths of business innovation.

In this research, a knowledge focused servitization management model is proposed based on the interaction of knowledge space (KS) management, service oriented human resources (HR) skill development and corporate collaboration. Here, KS management contains a set of knowledge co-creation process, service oriented HR skill development covers the concepts of service idea generation and the service centric mindset, and corporate collaboration is centered on service value system. Our exploration analyses an action research with Japanese monitor maker by applying approach of service innovation chart (SIC) and business model (BM) thinking. The results reveal that, the proposed approach is workable to recognize organizational knowledge and knowledge gap for service-based value creation. This approach influence to develop technical personnel's service idea generation skills and service mindset as well. In addition, we examine four case studies and the case studies results show that, the KS management, services oriented HR skill development, and corporate collaboration with different industries is a way to knowledge co-creation, thereby building 'service value system' towards a servitized firm.

Keywords: Servitization, services value system, services-based value, knowledge space management, service oriented skill development, corporate collaboration, business innovation.

Dedication

I would like to dedicate this dissertation for my parents, Md. Akbar Ali P.K. and Mrs. Joygon Begum.

Acknowledgements

At the first, I acknowledge an immeasurable debt of gratefulness to the almighty Allah, the supreme merciful and kind, who provided plentiful provisions and blessings for me in my entire life including while carry out and finalize this research project.

I would like to express my deepest gratefulness and thankfulness to my supervisor Associate Professor Dr. Kunio Shirahada, whose supervision from the initial to the concluding level facilitated me to carry out and accomplish this research project. I am delighted and appreciative to work under the outstanding direction of him. This research would not have been possible without his supports, guidance, encouragement, constructive criticism, and innovative ideas. In addition, the series of scholarly dialogues between us educate me to keep on the accurate path of the research project. I would like to convey my enthusiastically thankfulness to my co-supervisor Professor Dr. Michitaka Kosaka for his generous supports, kind cooperation, scholarly discussion, and loving as well as caring guidance in my every steps of this research plan and more broadly in my JAIST life. His valuable efforts and assistance extended to me throughout my study.

My special acknowledgment to my minor research supervisor Professor Dr. Takashi Hashimoto, who has shared his knowledge and provided me his valuable time with guidance and advice throughout my minor research project. I grateful acknowledge to Professor. Dr. Yuji Kohda for his nice comments as regards my research work. I also thankful to professors in JAIST who gave us lectures and to all members of the

dissertation evaluation committee, who delivered their vital remarks and useful criticism during the preliminary and final defense. I would like to convey my gratitude to Yokohama research laboratory, Hitachi Ltd. and Company A and its employees for provided supports and feedback to share perceptions and experiences in our research project.

This research was funded by the Ministry of Education, Culture, Sports, Science and Technology (Monbukagakusho) scholarship, Ishikawa city scholarship, and Research Promotion Awards of JAIST, Japan. I would like to gratefully thank the support of MEXT and others mentioned scholarships for granting me and giving me financial backings to carry on my doctoral research. I wish to give special thanks to all members of ‘Kosaka-Shirahada Lab’ for their cooperation by productive discussion, comments and suggestions during lab seminar that helped to my research. In particular, to Ms. Qi Zhang, who continuous advised me about my research project.

I am also grateful to all of my teachers who taught me from childhood to university life. My heartily gratitude to my dearly loved parents Md. Akber Ali P.K. and Mrs.Joygon Begum, my brothers Tobibor Rahaman, Zafrul Islam, my sisters Tahmina Khatun, Fahima Akter, and my beloved wife Tazmin Nahar. I also thank the others supporting members of my family, whose supports, encouragement and love every time motivated me to go ahead.

At last but not least, I thank all JAIST staff, and all of you who have cooperated with me to made this research project rewarding.

Contents

Abstract.....	i
Dedication.....	I
Acknowledgements.....	II-III
Contents.....	1-3
List of Figures.....	4
List of Tables.....	5

Chapter 1: Introduction.....6-17

1.1 Background.....	6
1.2 Research Problem	10
1.3 Research Aim and Research Questions	13
1.4 Structure of the Study.....	15

Chapter 2: Literature Review and Practical Issues on Servitization....18-41

2.1 Knowledge Management Viewpoint.....	18-24
2.1.1 Concept of knowledge management	18
2.1.2 Development of knowledge management in process application.....	20
2.1.3 Practice of knowledge management in service value co-creation.....	22

2.2. Human Resource Viewpoint.....	25-31
2.2.1 Service skill and mindset.....	25
2.2.2 Skill development process in service field.....	27
2.2.3 Application of skill development in organization.....	29

2.3. Corporate Collaboration Viewpoint.....	32-38
2.3.1 Corporate collaboration concept in business.....	32

2.3.2 Corporate collaboration process.....	34
2.3.3 Practice of corporate collaboration in manufacturing industry.....	35

2.4. Summary of Literature Review and Practical Issues on Servitization...39-41

Chapter 3: Knowledge Focused Servitization Management Model.....42-58

3.1 Key Factors for Servitization.....42-50

3.1.1 Knowledge space management key factors.....	42
3.1.2 Skill development key factors.....	45
3.1.3 Corporate collaboration key factors.....	48

3.2 Relationship among Key Factors for Servitization.....51-54

3.3 A Knowledge Focused Servitization Management Model.....55-57

3.4. Summary.....58

Chapter 4: Application in Japanese Monitor Maker.....59-75

4.1 Initial State.....59-60

4.2 Process.....61-68

4.2.1 Service innovation chart.....	61
4.2.2 Business model thinking.....	63
4.2.3. Procedure.....	66

4.3 Evaluation.....69-74

4.4 Summary.....	75
Chapter 5: Case: Servitization Paths in Successful Companies.....	76-96
5.1 Nike and Apple	76
5.2 HDRIVE and Hitachi Capital.....	82
5.3 Uniqlo and Toray.....	87
5.4 PetSmart, Inc.....	93
5.5 Summary.....	95-96
Chapter 6: Conclusion.....	97-110
6.1 Solutions for Research Questions.....	97-105
6.2 Academic Implications.....	106-107
6.3 Practical Implications.....	108-109
6.4 Limitations.....	110
References.....	111-121
Appendix.....	122-124

List of Figures

Figure 1: Research issue finding map.....	11
Figure 2: Structure of the study.....	16
Figure 3: Knowledge space.....	44
Figure 4: Relationship among key factors for servitization.....	53
Figure 5: Knowledge focused servitization management model.....	55
Figure 6: The major contents in service innovation chart.....	62
Figure 7: Business model thinking tools.....	65
Figure 8: A part of action research procedure with Japanese monitor maker.....	66
Figure 9: Beyond barriers experience in service oriented thinking process.....	71
Figure 10: Action plan for service innovation in individual and organizational perspective.....	72
Figure 11: Approach to create service climate in organization.....	74
Figure 12: Co-creating value through managing Nike+iPod system.....	80
Figure 13: Value co-creation with partners through service innovation.....	84
Figure 14: Energy saving and profit sharing using inverter.....	85
Figure 15: Inverters energy saving service operation system.....	86
Figure 16: Uniqlo's business innovation through knowledge focused services	91
Figure A: Grameen-Telenor B to B to G to S collaboration model.....	124

List of Tables

Table 1: Study in knowledge management viewpoint.....	24
Table 2: Study in human resource viewpoint	31
Table 3: Study in corporate collaboration viewpoint.....	38
Table 4: Feedback form (December 20, 2013).....	67
Table 5: Feedback form (September 9 th -20 th , 2014).....	68
Table 6: Results of feedback.....	69
Table 7: Correlations among items	70
Table 8: Summary of case studies.....	95

Chapter 1

Introduction

1.1 Background

Macro changes including mega trends, such as demographics and economic growth, are affecting on the global business environment. The modern world is rapidly becoming more focused towards services. The service activities are “dominating the economies of the world and much of the strategic thinking of business” (Vandermerwe and Rada, 1988; p.314). Today, customers are demanding a value creation process rather than just a typical product, i.e. transportation, not a vehicle itself (Powar et al., 2009). Service has become the driving forces behind corporate profitability in that it creates value via the organizational knowledge co-creation process (Belal, et al., 2013) and that value drives consumers via satisfaction translating into loyalty (Kainth and Verma, 2013). Traditional product-based organizations can no longer sustain competitiveness in business by offering pure goods differently. While it is true that these organizations have always been involved to some extent with ‘servicing’ (Vandermerwe and Rada, 1988), it has more been a way to protect their products than something that forms the basis of a

competitive strate for creating value (Belal et al., 2012). This has created a situation in which product-based organizations are now under a massive amount of pressure (Neely, 2007). They should practice for survive to adjust with knowledge co-creation process-based service, thereby the company can move up to the complete value chain (Neely, 2007) perspectives and can extend their business lines-up.

Transformation from traditional business view to value chain perspective by adding services was first introduced by Vandermerwe and Rada (1988), who coined it as the strategy of servitization in business. They argued that manufacturers should start creating specialist services around the products that a company makes: specifically, to “sell their know-how, and set up special companies and units for these new service activities rather than servicing” (Vandermerwe and Rada, 1988, p. 315) in order to achieve value creation process. The servitization is more than only adding services to existing products or product-based innovation, it’s about viewing the manufacturer as a service provider (Baines, 2013). The idea is that manufacturing companies should change their business philosophy from the product-based view to a service-based one. In other words, manufacturers need to transform their business vision from goods-dominant (G-D) logic to service-dominant (S-D) logic (Vargo and Lusch, 2004). The difference between the two is that in G-D logic, value is determined by the manufacturer through the exchange of goods for money, while in S-D logic, value is co-created with the customer and value is re-defined to mean ‘value-in-use’ (Vargo, Lusch and Akaka, 2008, p.146). Managing successful servitization is the core task for a product oriented organization with the aim of transforming its business from the G-D logic view to the S-D one to ensure service-based value for customers and create new business opportunities.

On the basis of basic servitization concept, Belal, Shirahada, and Kosaka (2012) defined that, servitization is a transition process of adding service concepts into product-based business in manufacturing companies. The service concepts is clarified that, service is “an economic act offered by one party to another” (Lovelock and Wirtz, 2004, p.9) that provides benefits to recipients and creates value. In addition, Vargo, Maglio, and Akaka (2008) specified that “service is the application of specialized competences for the benefit of another entity or the entity itself” (Vargo, Maglio, and Akaka, 2008; p. 2).

A servitization is happening today in global business. Modern corporations are increasingly offering value packages with the “combinations of goods, services, support, self-service and knowledge” (Vandermerwe and Rada, 1988, p.314) to customers. Baines et al. (2007) noted that, typical organizations were moving toward customer centricity from physical-goods centricity that offered more tailored and incorporated solutions to recipients instead of plain products. Mont (2001), Manzini and Vezzoli (2003) also expressed that currently manufacturing companies are not only offering pure product but also becoming more oriented to offer the product-service together. The developed economies have already started to change their business operation system from typical product producing to more product-service oriented systems (Wise and Baumgartner, 1999; Neely, 2008). For example, Ericsson and Rolls-Royce. Ericsson is Sweden-based world’s leading mobile network supplier, focused on its traditional products and services, i.e., mobile handsets, subsystems products, mobile systems, mobile switchers, operating systems, and customer databases until 1995. However in 2000, they offered solutions and design, built and operated mobile phone networks, acted as suppliers of complete mobile systems, and also offered business consulting for sharing knowledge and feedback for

partners that indicated it was an integrated solution creator and a provider.

Rolls-Royce is a power systems company. In the past, the company only used to offer aircraft engines but today they deal beneficial services within their products to customers. Customers can use Rolls-Royce's engines in the way of pay-by-hours or aviation miles covered scheme. In addition, the company ensure extremely dependable services for customers and create a platform for generating customers' business without investing mammoth capital expenses (Rakesh and Padmakumar, 2014). By adapting service-based business view with its core products the company has remarkable change in revenues and market share.

Therefore, it is noticeable that, for gaining corporate success in current trend of global business, companies are necessarily need to offer service and goods together in single "value packages" (Correa et al., 2007; p. 445) to their customers (Wise & Baumgartner, 1999).

1.2 Research Problem

Operating servitization of business and managing it successfully is the biggest challenge (Martinez et al., 2010) in terms of creating new business. This is because, in the aim of adapting servitization, a technology-based company would first need to resolve some critical internal and external issues. This could include redesigning of organizational philosophy (Werner and Ulaga, 2008) through successful dealing the interface of business, technology, and people (Daim, Jetter, and Demirkan, 2010). Wise and Baumgartner (1999), Oliva and Kallenberg (2003), and Weeks (2010) stated that, to adapt a successful servitization within business, organizations are likely to change their strategies, operations and value chain, technologies, people, and expertise supporting cultural shifts in the organizational blueprint, and system integration competences (Belal et al., 2012). The transformation from a product-based business to customer focused-service-based business is a time and resource-intensive process that required committed leadership-people and a significant organization wide culture shift (Brown, Gustafsson, and Witell, 2011).

In addition, servitization as a transition process needs to innovate service by creating knowledge that includes organizational knowledge management (internal and external issues), human resources education (internal issue), and inter-organizational relationship building for knowledge co-creation with stakeholders (external issue). Therefore, companies are required to construct a 'system' from the viewpoints of knowledge management, human resources (HR) skill development, and corporate collaboration that enables new knowledge to be managed and service to be created as

value in accordance with market requirements.

There are several studies on servitization, likely; general discussion of servitization (Vendermerwe and Rada, 1988; Neely, 2007; Ren and Gregory, 2007; Baines, et al., 2010), product service system (Baines, et al., 2007), financial consequence of servitization (Neely, 2008; Neely et al., 2011; Visnjic, Ivanka, and Van Looy, 2013), servitization challenges (Baines, et al., 2009; Martinez, et al., 2010, Weeks, 2010), general

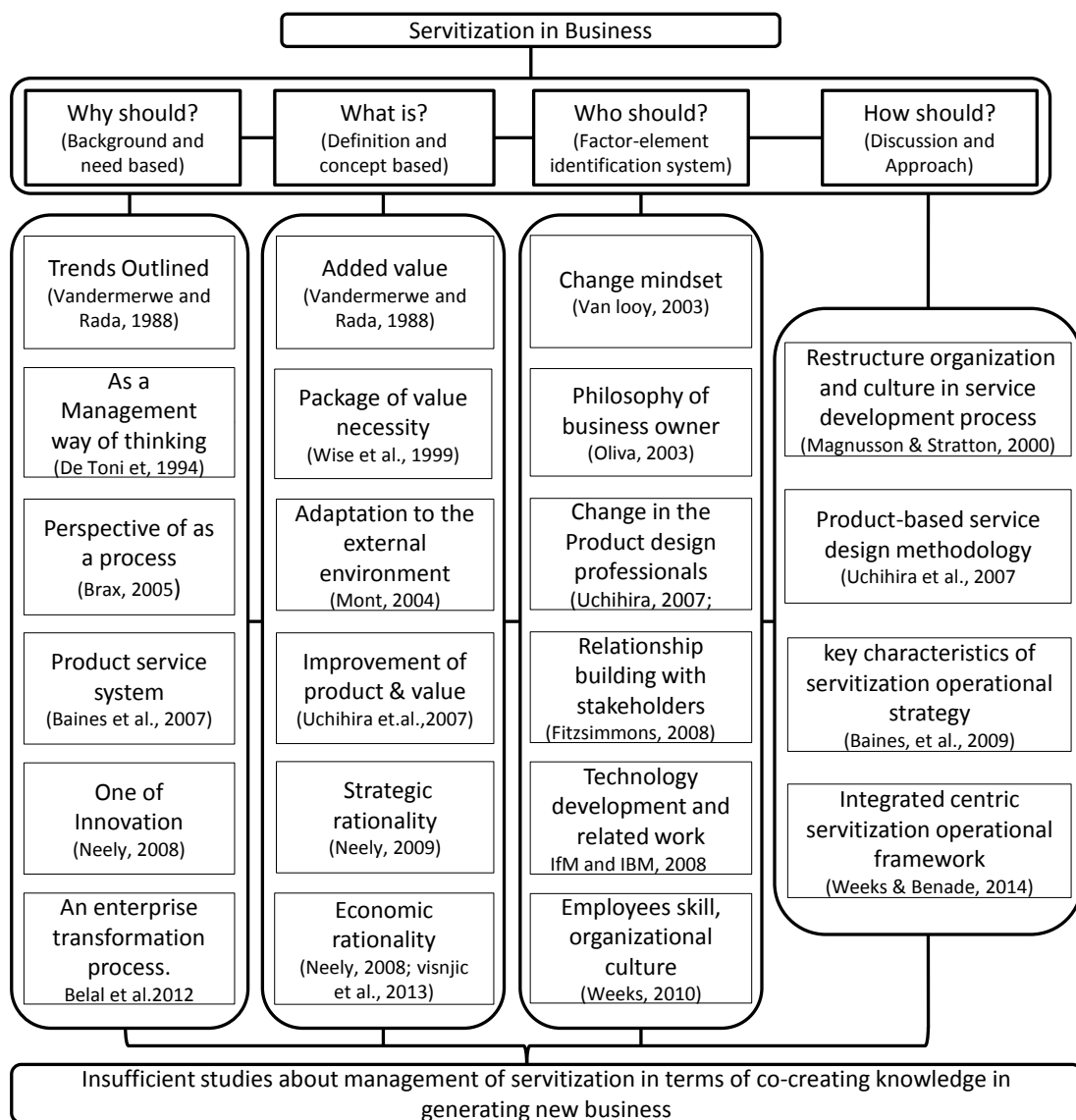


Figure 1: Research issue finding map

method discussion of servitization (Magnusson and Stratton, 2000; Janthong and Butdee, 2010), design method of product-based services (Uchihira et.al., 2007), operation strategy in servitization (Baines, et al., 2009; Weeks and Benade, 2014). However, “there is no sure-fire way of guaranteeing a successful transition from goods logic to service logic” (Brown, Gustafsson, and Witell, 2011, p.2). There is still insufficient research on how to perform servitization management in a way that enables knowledge management, HR skill development, and corporate collaboration to be used as knowledge co-creation with the aim of creating service-based value as a path toward business innovation, as shown in Fig. 1.

1.3 Research Aim and Research Questions

Based on the discussion of background and research problem, it is explicable that, the product-based organizations have already become conscious to achieve the servitization opportunity. More and more corporations throughout the world are also trying to practice servitization in their business (Vandermerwe and Rada, 1988). Conversely, it is not easy to manage. Many researchers have discussed servitization in a theoretical sense, nonetheless, management of servitization by solving explicitly internal and external issues in-terms of knowledge co-creation process related works is still not enough. We hypothesized that, if there is any verified model of managing servitization then pure manufacturers can will become able to attain to prospect of co-create new knowledge, thereby innovate customer centric service-based value and expansion the opportunity of business. Thus, this study aims to build a knowledge focused servitization management model for business innovation. This model consists of knowledge space (KS) management, service oriented HR skill development, and corporate collaboration. Here, KS management contains a set of knowledge co-creation processes, service oriented HR skill development covers the concepts of service idea generation and the service centric mindset, and corporate collaboration is centered on the service value system.

To achieve the research aim, this study identifies the key mechanism of co-creating knowledge for competitive service as per consumer value with the lenses of knowledge management view, human resource view, and corporate collaboration view with following research questions.

Major research question (MRQ):

How should manufacturing companies do to transform to service oriented company?

Subsidiary research questions (SRQ):

- (i) What are the key factors for managing servitization?
- (ii) What is the relationship among key factors and servitization management?
- (iii) How does servitization management model affect to create knowledge focused service for customer?

1.4 Structure of the Study

This dissertation is structured into six chapters as shown in Fig. 2. The introductory chapter includes the research background, research problem, research aims and questions, and a general idea of the dissertation. The following chapters are structured as follows;

Chapter 2 offers an overview of the servitization and its practical issues. At first, this chapter discusses the review on servitization in the perspective of knowledge management, skill development, and corporate collaboration. Secondly, it examines the existing process related to the knowledge focused service creation. Thirdly, this chapter analyzes the practice of mentioned viewpoint in servitization of product-based organization. Finally, necessary servitization management model for manufacturing industry are examined.

Chapter 3 proposes a dynamic and verified model on the basis of knowledge space (KS) management, services orientated human resources (HR) skill development, and corporate collaboration centered on service value system. The value of proposed servitization management model is that, it ensures a 'service value system' to generate a set of knowledge co-creation process including create and keep new knowledge through the interaction of KS management, HR skill development, and corporate collaboration. The strengths of 'service value system' designs the total services for recipients.

In Chapter 4, this dissertation analyzes on service climate creation in Japanese monitor maker basis on action research. The new approaches namely; service innovation chart (SIC) and business model (BM) thinking is applied for development of technical

personnel's service idea generation thinking and recognize knowledge for customer solution according to market situation. Then, it investigates the procedure and evaluation of action into creating service climate bring-about value chain perspective in this technology-based company.

Chapter 5, presents four case studies. The first three cases are analyzes as successful servitized manufacturing companies and the last one is scrutinizes as failure servitization case example. The analysis of case studies shows, in order to transform a service-based business from a product-based one, the company should adapt with 'service value system'.

Chapter 6 concludes the contributions of the study by answering the both of subsidiary and major research questions. Then it put forward to the academic

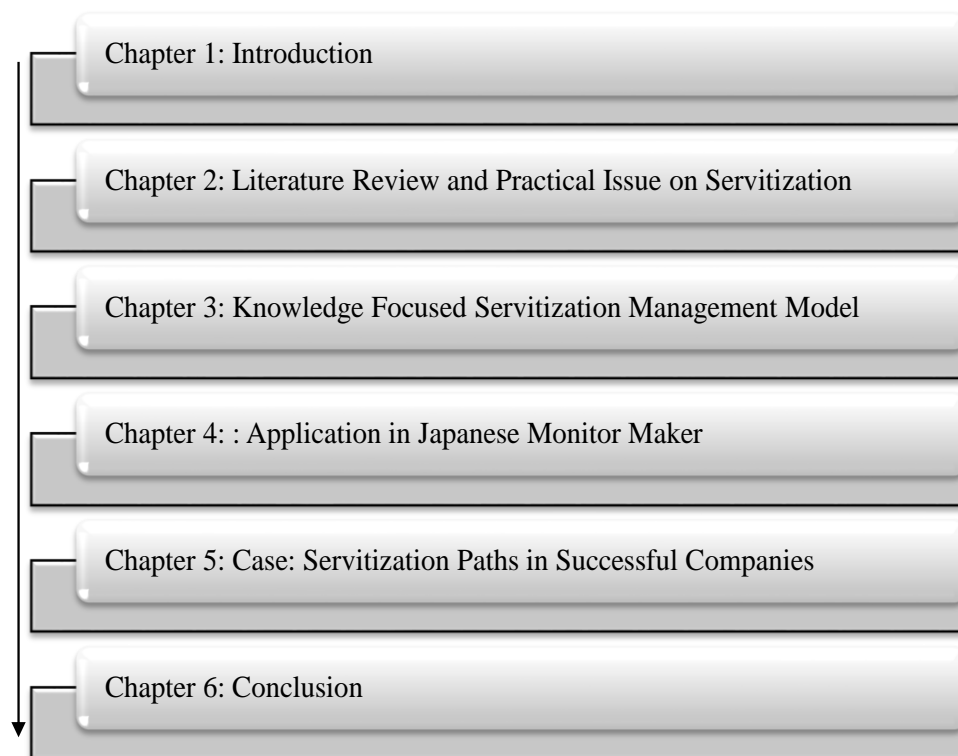


Figure 2: Structure of the study

implications; make a contribution to basis of discussion on service science and inspire service, knowledge, and HR management academics to involve in business dynamics research and activities. After then, it discuss about practical implications; provides a tested way to overcome top management challenges; i.e., transforming a company from goods oriented view to service-based value oriented view. Thereby, organizations become able to gain cultivate new business as well as new market. It also ensure the long-term corporate success including making profitable situation amongst actors from the large global economic and environmental system. In addition, chapter 6 also point out about limitations of this research and to end with discusses for the future research instructions.

Chapter 2

Literature Review and Practical Issues on Servitization

2.1 Knowledge Management Viewpoint

2.1.1 Concept of knowledge management

Customers are currently demanding more services along with their products (Vandermerwe and Rada, 1988). For organizations to keep up with this demand and adopt a service value chain view, they need a reliable knowledge co-creation process for new knowledge creation. Knowledge is one of the most important resources of any firm (Grant, 1996) and has more significance than other, more tangible assets. Therefore, managers need to consider knowledge as they decide upon the direction of the firm in order to ensure service innovation and corporate success.

Realizing the importance of knowledge in current business environment the knowledge view is practicing in both business and academia from several years ago.

Scholars are defining knowledge in their scholarly work. Nonaka (1994) defined knowledge as justified belief for increasing capability of organizational acting performanc. In 2008, Uriarte expressed, knowledge has the chance to becoming knowledge by further processed of information and it includes experience, knowhow, competence, information, skills, and so on. In addition, the meaning of knowledge is depends on the context (Sveiby, 1997).

However, in current service economy, management needs to be aware of what kind of knowledge they have and how to effectively utilize it for organizational service innovation. Two kinds of knowledge are available in general, tacit knowledge and explicit knowledge. Tacit knowledge is individual that is in the human brain (Uriarte, 2008). It stored as hidden, implicit as well unprinted way in every practical or typical human being head. It established through practice of communication with other people and nature. Therefore, this kind of knowledge gathered mainly by study and experience, and the explicit knowledge is formalized and arranged (Brown and Duguid, 1998). It is easier to identify, store, and retrieve (Wellman, 2009). Therefore, explicit knowledge can be drive in the process of products and services systems.

After realization about knowledge, management should learn and adopt related knowledge basis on organizational context and market situation that generate new knowledge and create service oriented value. In addition, to keep in this track organization always within knowledge management tasks both of tacit and explicit one as to produce service value the both kind of knowledge take important part. It can be defined that knowledge management is the process of recognizing, obtaining, distributing, and keep

up knowledge that is essential generating value from providers intellectual and knowledge-based assets (e.g. Filemon and Uriate, 2008).

Nonaka (1994) expressed that, knowledge management and organizational learning almost always takes root in the interaction and relationship between these two types of tacit and explicit knowledge. Thereby, a firm becomes enabling to respond to overcome emerging challenges by innovation. In service economy, the organization is driven by logic of S-D and the value is determined by customer (Vargo and Lusch, 2004). Therefore, making interaction and relationship with recipients as well as managing knowledge is major work for an organization.

Thereby, the firm should determine, what service they are going to be offer for market that can create long term value and what knowledge are required for it. According to their awareness, a firm need to innovate corporate infrastructure (Belal, Shirahada, and Kosaka, 2013) including development of people mindset to adapt with new organizational philosophy of knowledge focused service culture to promote servitization in organization.

2.1.2 Development of knowledge management in process application

The basic of knowledge creation is an on going dialogue between tacit and explicit knowledge, more specifically, it is created through the interactions amongst individuals or between individuals and their partners (Nonaka, 1994; Nonaka, Toyama, and Konno, 2000). Therefore, the knowledge creation is a dynamic process of justifying a personal belief on the way to the truth (Nonaka and Takeuchi, 1995; Nonaka, Takeuchi,

and Umemoto, 1996). Nonaka's knowledge creation theory is effective to understanding the process of knowledge creation, though have some thinking limitations. Knowledge is a "justified true belief" (Nonaka, Toyama, and Konno, 2000; p.7).

To become a service value chain view of an organization, it should create new knowledge and should manage it successfully. Nonaka's (1994) theory and model stated, the individual members of an organization drive organizational knowledge creation. In this process, individuals is interacted with all members and earn information by going outside their own borders, in this way motivate themselves and participating others partners (Bratianu and Orzea, 2010). Here, may be Nonaka mentioned employees as individual members and the market or customers as outside of their borders. Nevertheless, in service value chain view, the customer is important part of an organization, they are not outsider. The idea and experience introduce from customer in service value driven organization.

Therefore, to meet this aim, a typical organization should prepare its business opportunity as market or customers' continuous connector according to service knowledge creation. For that the innovation of organizational infrastructure is required, where the infrastructure innovation is a process that requires supporting resources on the original organizational infrastructure for specific procedures and tools based on the manner of communication (Belal, Shirahada, and Kosaka, 2013).

When an organization manages its business opportunity as connector with individuals, partners, and market then resources are accessible over time and context basis. Thereby, the new knowledge will create. It is a continuous and dynamic process. Thus, a firm can improve the performing capabilities of businesses by acting on creative insights

and offers recipients actual values that result in raising the level of consumer participation.

2.1.3 Practice of knowledge management in service value creation

We have mentioned that, servitized firms tend to operate on the basis of S-D logic. According to this logic, service leads to value creation and customers are key when it comes to producing as well as determining value (Vargo and Lusch, 2004; Vargo, Maglio, and Akaka, 2008). From this point of view, managing knowledge is a critical issue for management, and it is therefore crucial for service providers to effectively manage their organizational knowledge on the relationships among stakeholders (Uriarte, 2008). Specifically, management should have a firm method in place to build and maintain strong relationships with customers and other partners. This is why it is so important to be cognizant of the updated requirements of customers and of the opinion and responses of the organization itself while at the same time meeting these requirements and organizing resources from supporting partners with the aim of creating services as a solution that guarantee value to the recipients. Therefore, Knowledge management in the practical field is necessary to offer value to market. For example, GE Healthcare (Mathieu, 2001) is a total hospital management provider thru medical solution. Which increasingly offer service-based value and make sure company's corporate sustainability.

The GE Healthcare was originally a G-D logic-based medical equipment manufacturer. When the company realized that the global market trends were pointing to a call for more services that can create a value package within products, they poured all of their knowledge, skills, and capabilities into producing medical equipment that could

manage more knowledge while integrating more resources within services, thereby enabling customers to become more educated and expert in the use of the products, including managing products themselves for healthcare solutions. When customers knew how to use these offerings, what functions were available, how to manage them, and how they were helpful for society, or when customers were able to operate these offerings with ease, service oriented value was created.

Today, GE Healthcare provide all the necessary services within their core medical equipment to their customers as a total healthcare solution. The service with medical equipments are namely; customer and technical support, deliver a complete end-to-end solution for drug development needs, clinical education, healthcare IT education, product education (clinical), product education (technical), training, online tools and mobile Apps, and many more (GE Healthcare Life Science, 2014). By managing all knowledge, GE Healthcare are now known as a value package offerer and are currently leading the healthcare equipment market.

This is a clear example of how knowledge management has a tremendous amount of influence on building service oriented value and that utilizing such management appropriately is crucial for a company in the practical field when it wishes to create knowledge-focused service as value for the customer. The knowledge management perspective studies and practical issues of servitization as shown in Table 1.

Table 1 Study in knowledge management viewpoint

Scholars and Year	Contribution in knowledge science	Key words
Nonaka, 1994; Nonaka, Takeuchi, and Umemoto, 1996; Nonaka, Toyama, and Byosiore, 1998	Organizational knowledge creation theory and dynamic knowledge creation process model, which leads to managing process of knowledge creation by performing firms.	Knowledge management and knowledge creation theory for organization
Nonaka and Takeuchi, 1995	Japanese organization is success to continuous innovation by using organizational knowledge creation theory	
Conner and Prahalad, 1996	A resource-based-knowledge-based theory of the firm. Predicts choice of organizational mode through which individuals cooperate affects the knowledge being applied to business activity.	
Demarest, 1997	Understanding knowledge management for effective competition.	
Nonaka, Toyama, and konno, 2000	Knowledge-creating process model has been proposed to understand the knowledge creation nature.	
Brown and Duguid, 1998	Knowledge management include not simply protecting intellectual property in established knowledge organizations, but development this more complex from of organizational capital.	Knowledge intensive service business for gaining competitive advantages
Umemoto, 2002	Development of knowledge management theory and practice it in Japanese industry for adapting with recent business trend.	
Argote and Epple, 1995	Scrutinize the gaining, depreciation and transfer of knowledge development through learning by doing in service organizations.	
Grant, 1996	Firms' role in integrating the specialist knowledge for goods and services	
Sveiby, 1997	Knowledge is wealth and mentioned as intangible asset for organization. It is core to increase competence of an organization. The business services sector is selling knowledge.	
Zollo and Winter, 2002	Knowledge articulation, and knowledge systematization processes in the evolution of organizational dynamic capability.	
Evanschitzky, Ahlert, Blaich, and Kenning, 2007	Managing knowledge processes in knowledge intensive service networks.	
Uriarte, 2008	Basic elements of knowledge management for organizational corporate success.	
Bratlanu and Orzea, 2010	Knowledge is significant resource to adapt and gaining competitive advantages in business. Knowledge dynamic model discussed the state-of-the-art in this explosion field in knowledge creation.	
Belal, Shirahada, and Kosaka, 2012; Belal, Shirahada, and Kosaka, 2013	Knowledge space management is set of all knowledge from performing partners are dynamic and has significant role to produce service solution.	

2.2 Human Resource Viewpoint

2.2.1 Service skill and mindset

In the modern global service economy, an organization will typically devote the bulk of its resources to offering services to customers. Both management and HR play a major role in these circumstances. Here, a service provider is considered a service seller, so both service skills and a service mindset are key requirements for service value creation.

Today, many traditional manufacturers are transforming their businesses into servitized firms or service oriented value providers. Oliva and Kallenberg (2003) have stated that “transitioning from product manufacturer to service provider constitutes a major managerial challenge” (Oliva and Kallenberg, 2003; p.161). In this practice, the management, production, and marketing sectors are all involved. As an example, take Pacific Coast Distributing, Inc., which has offered a pet food service out of their PetFood Warehouse store from 1986. After 1989, the company added a service concept to its business and changed the company name to PetSmart. After finalizing their development of a total services package for the lifetime care of pets in 2000, the company developed its HR skills from top to bottom, including redesigning their marketing plan. The aim of the leadership was to emerge as successful servitized company (Company History, 2014; Brown, Gustafsson, and Witell, 2011).

Regarding service oriented HR skills, a number of scholars have articulated that, when transforming a product-based organization into a service-based value creator, considering only service skills is not enough: others technical skills and business skills

indeed, whole sets of skills are also needed. Nonetheless, a manufacturing organization is generally belongs with engineering and business skills. For example, Magnusson and Stratton (2000) described that, “who had undertaken a servitization process, then there is additional service related skills to compliment an existing manufacturing skills base” (Magnusson and Stratton, 2000; p.53).

Hence, when a firm in under servitization process or promised to deliver service-based value, then it is one of major work to generate methods for growth of their employees as service oriented skill and mindset with their others manufacturing-based skills to gaining a competitive advantage.

Normally the HR including top level managers to bottom level employees are core of generating business. It is truer in service business, because from service idea thinking to service deliver including other supports and solution are performed by employees. As in servitization philosophy the organization agreed to provide customers desired services oriented solution. Therefore, a strong interaction with customer is needed to understand their required value. By which a firm can design and deliver it. The new service ideas lead to make clues of producing the required market value. These service ideas generate by firm’s personnel’. Then, management design and deliver it as value package for customers. Therefore, generating service idea by employees is one of core to develop customer value by firm. It became possible when, service skill and mindset be adapted by HR together with upper level corporate management to end level staffs.

Although we know, the motivation of employees as service oriented skill is more difficult. Since their basic is technical and business design skill. In this situation an expressive leadership strategy for sharing the organizational view and its advantages is

necessary in order to assure a win-win situation with employees. There is the need to establish a service knowledge sharing scheme that increases employee confidence, motivating workers to increase their own value as service providers and to create a robust service culture within the organization. Thus, the development of service-related skills and a service mindset is a powerful means of generating service thinking and promoting servitization.

2.2.2 Skill development process in service field

We have articulated that, the service skill development is a big challenge for organization, as the organizational objectives is fully different from existing one. Therefore, at first, company should share about its business objectives and aim to their employees. Then, responsible management will lead to assess about the current situation regarding what and where employees' skills gap into run with new philosophy. Company already knows that some core employee's skills are required for meeting this aim, i.e. "external focus, customer accessibility, solution orientated thinking" (Magnusson and Stratton 2000, p.53), and understanding goods-based and service-based value.

However, basis on services oriented view of a company needs to generate customer value. Without understanding customer and their required value (Neely, 2007) it become difficult for a company to move as services centric philosophy. After become conscious about market as well as customers preferences the management should take step to prepare teams as fit as such preferences. As employee (individually or collecectively) is responsible for generate idea to design, develop and deliver this value

as well as build relationship. The skill development based on service is the important of the firm to confirm for further operational growth (Noor et al., 2011) aimed to sustain in global business dynamics. Therefore, regarding current business environment, company should develop service-based human skill.

Typically the skill development process involved in relationships with customers or colleagues, participation in specialist networks and participation in the activities of innovation (Brown, 2009).

In service oriented skill development program management should create technological advancement method thereby employees can connect with market, competitors and co-workers. Moreover that, by this method employees can gain and share customer as well as market knowledge regarding service value.

Management needs to ensure service specialist networks in the aim of developing personnels' service skills. The academic collaboration is effective for it. In this collaborative agreement, service scholars generate a series of lectures, arrange group discussions, provide service idea generation and problem solving related task, team will innovate method by assist of learning ideas and assist of scholars. In that way, new problem solving method and ideas will come out that can innovate services as customer desire value. Same time participations with service related innovation activities by a firm are also an effective part to service skill development project.

Every company usually belongs with training centers and training providers is “an encouraging factor for organization commitment and effective participation in training and skills development programs provided” (Noor et al., 2011; p. 1317). In addition, the training program is a key to motivate employees for giving effort to offer

organizational promised service. However, when a company wish to generate its business as service oriented view rather than original viewpoint then it is better to establish service training and education sector reasonably than only training program. Because regarding current viewpoint of firm, it should offer ‘value-in-use’-based package in stead of ‘value-in-exchange’-based (Vargo, Maglio, and Akaka 2008, p.146) package. For example, GE Healthcare offers total hospital management including training and education. In addition, for guarantee of this service, they improve as well as requite such kind of skilled employees who can improve themselves more gradually and can provide customer service that already proposed by GE Healthcare.

Thus, if a firm takes action regarding on previous discoursed steps then employees become service centric mindset and improve their service idea generation thinking skills.

2.2.3 Application of skill development in organization

In servitization, “there is a trend to create specialist services with their product, sell their know-how, and set up special companies and units for these new service activities” (Vandermerwe and Rada, 1988; p.315). An organization becomes able to sell know-how as well as sell service flow when it utilizes the human service skills combination with other competencies. In addition, we discussed that, develop of HR as service oriented skilled-based around technical and other skills are mandatory for gaining servitization. Therefore, the significance of service oriented HR is increasing day by day in modern manufacturing organizations who wish to transform themselves as servitized

one.

Consider a medical healthcare equipment. A manufacturer manufactures an advanced medical equipment by its technology and others raw materials. Company has publicized that this innovation is able to provide a quality patient care and help a professional to solve biggest challenges thereby ensures better patient care. According to G-D logic, manufacturers create value for customer by production process and delivery of a medical equipment and in this sense, “value is created by the firm in the form of a good, and this good is exchanged in the marketplace for money” (Vargo, Maglio, and Akaka, 2008, p.146).

In servitization philosophy, the company produces S-D logic-based products. In this intellect the value is determined by customer and measured by value-in-use (Vargo and Lusch, 2004). Therefore, as regards of this rationality the advanced medical equipment is just a product. It don't have value if the customers do not recognize that how to operate it, how it work, how to maintenance and what functioned for which particular disease as well as patients (Vargo, Maglio, and Akaka, 2008). We would like to tell again about GE Healthcare as an example. The GE Healthcare produce advanced technology basis medical equipments. It offers exceptional service-based value packages including products that more than just state-of-the-art technology (GE Healthcare mammography, 2014), it also like an institution of hospital as well as healthcare management. Today, the company aimed to deal all services including education, supports and training within their core medical equipments for customers. Consequently, GE Healthcare developed and arranged their employees as skilled to deliver customer and technical clinical education, healthcare IT education, product education (clinical and

technical), training and many more services (GE Healthcare Life Science, 2014) for making expert their customers nearly managing and using medical equipments. Thereby, a medical professional or a hospital can provide a quality of patients care and ensure sustainable in performance that helps to meet a long-term business objective.

Therefore, considering as services related view, management needs to apply an advance level approach to understand core customers' value and developed employees' skills in order to meet those customers' requirements. The HR related academic works in skill development as shown as Table 2.

Table 2 Study in human resource viewpoint

Scholars and Year	Contribution in HR skill development	Key words
Amabile, 1996	Creativity thinking skill influence organizationa innovation for creating value.	
Youndt, Snell, dean, and Lepak, 1996	HR management skill is a core driver to manufacturing strategy and firm performance.	
Gelderen, Sluis, and Jansen, 2005	Learning opportunities and learning behaviors of an organization are related to: a performance, skill development, and satisfaction.	Human skill in company's business performance
Brown, 2009	Higher skill development at work and organizational role to skill development process.	
Pieck, 2009	Skill development strategies in organization and its practical implementation for better performance.	
Akademir, Erdem, and Polat, 2010	Identifying common characteristics including skill development that seems to be part of a high performance organization.	
Quinn et al., 1990	Companies should understand this new approach by building their strategies not around products but around knowledge of service through developed service skills.	
Magnusson and Stratton, 2000	The service skill is one of the challenge and its development is required within manufacturing skill for achieving servitization opportunity.	
Oliva and Kallenberg 2003	Identifying the dimensions in terms of creating a service organization in the context of a manufacturing firm and successful strategies to navigate the transition.	
Vargo and Lusch, 2008	Adding higher order skill to ensure service dominant mindset for creating value.	Skill development for servitization
Weeks, 2010	Culture and skill are big challenges in servitization process. Manufacturers should consider service culture creation including service skill development in their servitization process.	
Noor et al., 2011	Organizational culture and skill development are very relevant factors that need to be considered in increase and implant an institution's servitization strategy.	
Belal et al., 2014	Proposed service innovation chart (SIC) approach to employees service idea generation thinking skill thereby service climate creating in technology-based organization	

2.3 Corporate Collaboration Viewpoint

2.3.1 Corporate collaboration concept in business

Corporate collaboration has been on the increase in recent years. Rapidly changing business trends are occurring due to economic and demographic adjustment, technological changes (Thomson and Perry, 2006), rising customer demands, and globalization, all of which are pushing organizations toward collaboration. Collaboration is now an effective mechanism to creating and sustaining competitive advantages of an organization (Bititci et al., 2003) as well as global movement. Its importance is realized by the fact that some of the world's largest companies are involved in with corporate collaboration (Sheth and Parvatiyar, 1992) i.e. General Motors, Siemens, IBM, Ford, Boeing, GE, Xerox, and Toyota. They met their goal by the mutual cooperation of collaborating partners. The corporate collaboration also led to several names and labels, for example, joint venture, R&D consortia, cross license, supply purchasing, franchising, business alliance and so on (Parkhe, 1991). However, regarding business standpoint Sheth and Parvatiyar (1992, p.72) defined that a corporate collaboration in business is an ongoing and recognized business relationship between two or more independent organizations to gain a mutual goals.

In today's global business environment, the primary goal of most manufacturing-based firms is to generate business on the basis on S-D logic, thereby achieving servitization. For these firms, knowledge is a valuable resource (Grant, 1996), as the knowledge co-creation process leads to the generation of service (Kosaka, 2010).

Collaboration as a source for organizational learning encourages firms to acquire knowledge (Grant, 1996) from other partners. Collaboration with companies in different industries leads to improvements in the organizational knowledge creation process” (Belal, Shirahada, and Kosaka, 2013; p.227). Therefore, transforming the way of company’s business goal into S-D logic-based, the corporate collaboration is required.

It has exposed, two or more independent or individual organizations make a collaboration an emerging joint purpose (Todeva and Knoke, 2005) that is to acquire knowledge from other associates, where it is better to say to sharing resources (Conner and Prahalad, 1996). Resources are all hard and soft strong points of an organization that become as source to continuous knowledge creation processes. Since, collaboration reaching necessary skills, technologies, finance, knowledge, experiences markets, and so on. It varies to firm’s specific characteristics and the multiple environmental factors (Todeva and Knoke, 2005). Therefore, the required resources could be arrange from collaboration with individual’s departments of enterprise, like; supply chains, business process outsourcing, R&D sectors and so on including different industries.

However, for most companies, it is not an easy matter to servitize themselves, and it requires a continuous service value producing business platform (Belal, Shirahada, and Kosaka, 2014). This is difficult because the companies have already been designed with G-D logic in mind but now aspire to include an S-D logic-based platform so that they can offer value bundles to customers. This is a “different way of thinking” (Belal, Shirahada, and Kosaka, 2014, p. 24), and organizations need to realize that it requires additional resources. These resources can be attained via corporate collaboration with other entities in a knowledge creation process (Belal, Shirahada, and Kosaka, 2013)

whereby the new knowledge can be assimilated and achieve S-D logic-based business platform for offer recipients' desired value. Thus, collaboration method can create constant value producing platform which is prerequisite for servitization.

2.3.2 Corporate collaboration process

We already have argued that, the corporate collaboration is required to achieve the servitization opportunity for a manufacturing company. To manage a successful corporate collaboration, a management would take a proper action.

Huxham (1996) claimed that, for successful business alliance, each organization needs able to rationalize its involvement by how it furthers goals of an organization. In addition, Ostrom (1990) articulated for taking decision of collaboration. The collaborative parties take actions accordingly how to develop sets of working schedule together to determine who will be decision maker, what actions will be permissible, what information needs to be provided, and how expenditure and profits will be distributed. Moreover, regarding collaboration process, Thomson and Perry (2006) claimed that, there are needs of three actions; implementation, negotiation, and commitment.

On the other hand, Neely (2007) stated that, an organization who wants to be a servitized firm then its first assignment is to understand customer value. Therefore, when the traditional manufacturing firm came to determine regarding its goal to generate and provide service-based value to its customers, then it should recognize that, except understanding customers' necessities the organization cannot create proper services as value for them.

After recognizing the customer value, management should generate ideas regarding what services is required to meet identified value. Then the corporation needs to analyze that, what resources are essential for knowledge co-creation process that can generate recognized services and corporation turn eyes to its own house for realizing to what and where the resources have lack. After understanding the current situation of the company, it finds the collaborating partners who are belonging with those very resources which can fill up the resource gap for producing required services. Therefore, the collaborating partners' selection would be basis on context. For example, Company 'ABC' wants to change its business view from G-D logic to S-D logic. The technology is main strength of this company. Nevertheless, to meet customers' required solution it needs skills and finance as additional competencies with ABC's resources. Then the company should find knowledge-based partners and make a negotiation to take the further actions. Finally, the all resources from partners will gather together that can assist to produce determined solution as service oriented value.

Thus, the corporate collaboration is a strategic decision for a company. If the govern can handle it brilliantly, then the collaboration become success. In so doing, all partners come to same ground and make win-win situation.

2.3.3 Practice of corporate collaboration in manufacturing industry

In order to access new knowledge, company arranges collaborative strategy (Grant and Bader-Fuller, 1996). Knowledge is continually being used to create novel

services, bringing new customer-centered offerings to market and innovating business. A number of both international and domestic companies are already involved with collaborative activities. For example, Kodak and Apple, AOL, Cisco, Yahoo!, and AT&T (Grant and Bader-Fuller, 1996), Uniqlo and Toray (Belal, Shirahada, and Kosaka, 2012), and Nike and Apple (Belal, Shirahada, and Kosaka, 2013) have all engaged in collaboration to offer the new services demanded by customers.

Here our study discuss about Nike and Apple collaboration. This collaboration helped to a show manufacturer firm to move service oriented value chain viewpoint by sharing their competencies. Nike has analyzed the market data and understood that users' demands are not only running shoes, they want more service. They require a personal trainer including fun environment during exercise. Hence, innovation of services as per meeting of users' requirement is urgent. Management discovered an idea that if they can offer music and sports together and others necessary service with product then it may create value for market. Therefore, the company decided to build Nike+ (NikePlus) platform (Ramaswamy, 2008). To translate this new project Nike recognized that more resources like; digital music technology, know-how, and experience should add with Nike's competencies. Then, in 2006 Nike Inc. made a partnership with Apple Inc. named 'Nike + iPod'. with the campaign slogan of 'Tune your run' (Apple-Press info, 23/05 /2006) as the electronic equipment, players, and digital music are available with Apple and the both organizations' top management wish to meet same goal, i.e. building services that enable the user to enjoy new experiences full of innovation and design, as well as it makes an effective change in the way people perceive and do sports (Belal et al., 2013).

Apple shared its electronic equipment, players, digital music, and experience with Nike's advanced technology, design of running shoes the management skills is also included here. All parties resources created knowledge co-creation process thereby built 'Nike+iPod system' and finally manufactured 'Nike + iPod Sport Kit' as a novel solution according to market desired services. The Apple wireless device with a sensor and a receiver also included here. The wireless sensor communicates with the receiver and works exclusively with Nike+shoes and the iPod nano provides real-time feedback about individual performance during training (Belal et al., 2012). This service is connecting world's consumers' and sharing knowledge as well as experience collectively or individually.

By innovating this solution, Nike has changed its business images from G-D logic-based to S-D logic-based. In the past, the product was the end point of the consumer experience, and now it is the starting point, and it serves continuous value to customers (Belal et al., 2012).

Thus, a manufacturing company needs to adopt a new way of thinking and realize that, a lack of the resources needed to overcome through collaboration with another company and customers (Belal, Shirahada, and Kosaka, 2013). Thereby, it can increase its capability to produce service oriented value for market. The corporate collaboration in knowledge creation related several studies for services as shown in Table 3.

Table 3 Study in corporate collaboration viewpoint

Scholars and Year	Contribution in organizational value creation through corporate collaboration	Key words
Parkhe, 1991	Focused on organizational learning and adaptation as critical process that dynamically moderate diversity's impact on longevity and effectiveness of collaboration.	
Sheth and Parvatiyar, 1992	Business alliance theory formation focusing to develop typology of business alliance in order to reduce some technological confusion.	Corporate collaboration and its trend in business
Huxham (1996)	Practical understanding of how organizations may collaborate effectively.	
Bititci et al., 2003	Proposed model of the collaborative architecture for gaining competitive advantages and extended business.	
Thomson and Perry (2006)	Understanding the collaboration process for collective value.	
Coleman, 2010	Balancing people, process and technology challenges for successful enterprises collaboration.	
Grant and Bader-Fuller, 1996	Collaboration contributes to the efficiency in the application of knowledge by improving the efficiency with which knowledge is integrated and utilized into the production of complex goods and services.	Corporate collaboration in service value creation
Todeva and Knoke, 2005	Strategic alliance management to explain the formation, implementation, and consequences among autonomous actors in an organization.	
Belal, Shirahada, and Kosaka, 2012; 2013; 2014	Corporate collaboration with companies in different industries is a way to achieve resources integration thereby co-create knowledge and deliver service value to recipients.	

2.4 Summary of Literature Review and Practical Issues on Servitization

In this section, we will summarize our findings from the three viewpoint of literature reviewed and its practice on servitization i.e. knowledge management, human resource, and corporate collaboration.

The literature review on knowledge management includes into three sections. The first one is about knowledge management concepts. It shows the importance of understanding and proper management plan of knowledge into service value creation. The dealings and interaction between tacit and explicit knowledge through working on information treatment, organizational infrastructure, culture, people mindsets, and so on are the main of knowledge management and organizational learning. This section also shows that, organizational knowledge management practice is regular aspects as the organization is always promised to offer service per market situation and managing knowledge are required for it.

The second section is development of knowledge management in process application, where the theories and models suggested that the constant dialogue between tacit and explicit knowledge is significant for knowledge creation and the knowledge creation is a dynamic process. It is differ on context basis. In literature review, it shows though the individual members of an organization drive organizational knowledge creation, but in services value chain perspective the customers are not outsider. The customers are core part of co-creating knowledge through introducing their ideas, experiences, and desire with company and make a service knowledge creation platform.

The third one is knowledge management practice in service sector. This part describes about GE Healthcare's knowledge management practice as an example. The example shows, GE relates its all competencies and strengths to manufacture their medical equipments and same time they connected their stakeholders aimed at gathering as well as sharing knowledge to generate more services as total hospital management. Therefore, building an active method of connecting stakeholders to understand their value and create services as solution is recommended.

The human resources (HR) viewpoint also allocated into three units. The service skill and mindset unit shows, employees perform main role to generate service idea for customers service-based solution. Therefore, under servitization process as well as the movement from G-D logic view to S-D logic view of a firm, there are need to develop and generate methods for growth of their employees as service oriented skill and mindset with their others manufacturing related abilities and thinking.

The skill development process section shows, company should recognize the current situation of employee's skills including where are their skills gap to meet organizational objectives as customer service value provider. To fill-up those skills gap, company should achieve technological advancement method, service specialist networks, service training, and education program. In this way employees become skilled as service oriented viewpoint.

In third part, it displays that, to achieve a service viewpoint within manufacturing industry, management needs to understand core customer value and prepared HR to meet those customer requirements. GE healthcare is a good practical example, which developed their HR skilled and made them expert to deliver total services to customers.

Thus, the GE Healthcare's customer enables to ensure a quality of patients care and co-creating value.

In corporate collaboration viewpoint, the first sector describes the corporate collaboration concepts. It argues that, the importance of corporate collaboration is increasing due to changing business environment from goods oriented basis to services oriented basis. To make a service oriented view business platform, it requires additional resources. In this scheme two or more independent organizational business make collaboration and share their competencies aimed to achieve a common purpose of new knowledge creation for servitization.

In the second part, it expresses about the corporate collaboration process and it shows, a successful collaboration for services oriented view or achieving servitization, the firm must understand customers' value. After recognizing customers' value, the management will gather resources from ideal partners thru collaboration to develop service in terms of knowledge co-creation process for meeting identified customers' value.

In third part of corporate collaboration view displays the practice of collaboration in servitization field. A good example viz., Nike Inc., is explains here, who made collaboration with Apple and has come as a servitized firm by resources integration in relations of knowledge co-creation. Thus, it is arguable that, corporate collaboration is an effective tool that assists manufacturer to increase its capability to produce service-based value.

Chapter 3

Knowledge Focused Servitization Management Model

3.1 Key Factors for Servitization

3.1.1 Knowledge space management key factor

Servitization is a transition process of an organization through adding service concepts into product-based business (Belal, Shirahada, and Kosaka, 2012). The servitization has mammoth strategic implication for the firm and for the others (Vandermerwe and Rada, 1988, p. 319). The final goal of servitization is to gain competitive corporate advantages by offering service-based value in terms of new knowledge creation for customers.

Due to business environmental change, the customers' demands and expectations have altered over time (Belal, Shirahada, and Kosaka, 2014). Customers are involved in knowledge sharing with the provider at each stage of product or service producing and

offering activities. Customers are significant resources in the process of value creation and a service-based value creation process occurs when manufacturer and stakeholders co-create knowledge.

Value co-creation is a strategic weapon and unending concern in building reasonable benefits (Uchihira et al., 2007; Belal et al., 2012) for both of the provider and receiver. Value co-creation concept is explored by Vargo and Lusch (2004). The values are always mutually and reciprocally co-created in the interactions by providers and beneficiaries through the incorporation of both party's know-how as well as action (Vargo et al., 2008). Knowledge creation and its application is one of main tools to sustainable competitive advantage (Nonaka, 1991, 1994; Nonaka and Takeuchi, 1995) as well as value co-creation. The company can no longer act separately (Prahalad and Ramaswamy, 2004) without understanding what customer value means (Neely, 2007) and what value is at present requisite by the market. Bring together knowledge and experience from assisting partners and consumers are needed to build solutions that are determined by the consumers. The developed solutions able to create value, as those solutions are resulted of knowledge co-creation from entirely partners. Therefore, management of resources can promote knowledge co-creation process. For example, from last two or three decades, manufacturing companies, namely IBM, General Electric, Rolls Royce, and Siemens, have shifted to an emphasis on knowledge management (Belal, Shirahada, and Kosaka, 2013) aimed at conducting their business from knowledge co-creation basis value.

In 1985, Jean-Paul Doignon and Jean-Claude Falmagne introduced the term 'knowledge space' (KS) to refer to the set of all possible knowledge states. Belal, Shirahada, and Kosaka (2012) then applied this idea to business, specifying that the set

of all knowledge from participating partners is dynamic over time and has a positive relationship with the produced solution.

However, as stated earlier, currently organizations are eager to modify their business philosophy from products centric to service centric. New knowledge is a prerequisite by which a company can perform rationally to put its innovative philosophy into action and ensure solutions for consumers (Belal, Shirahada, and Kosaka, 2012) over time. In this situation, companies need to gather or seek additional knowledge. Creating a KS through collaboration with ideal partners and consumers is a necessity for these firms. Collaboration creates a font of collected novel knowledge (Belal, Shirahada, and Kosaka, 2012), and the knowledge from all participants forms the basis of the KS. In addition, the collective competencies and activities of the KS generate the knowledge co-creation process, which is how new knowledge is created. This new knowledge is then

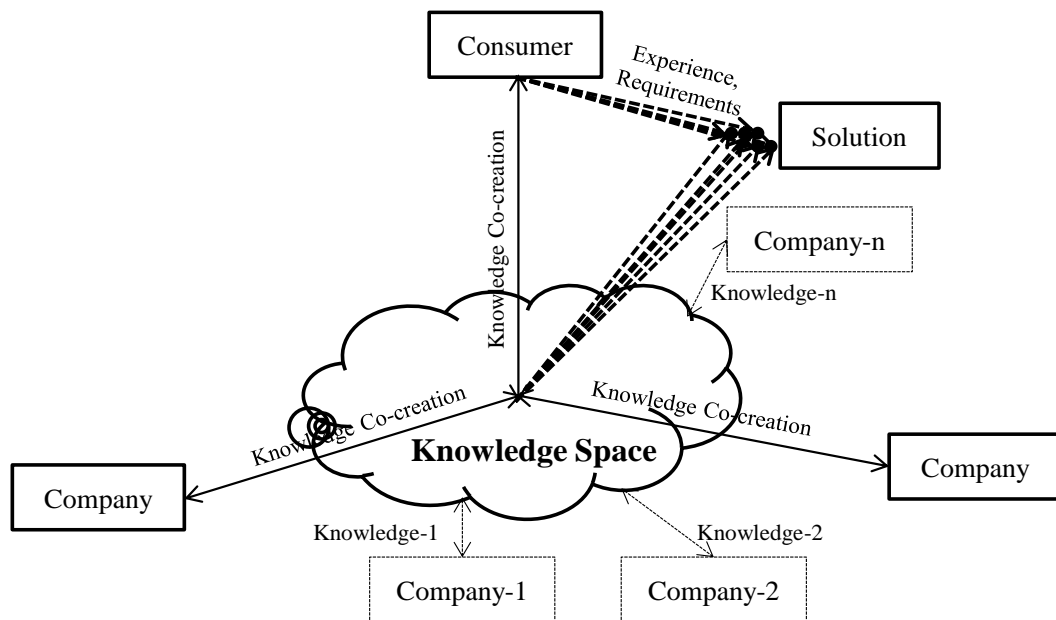


Figure 3: Knowledge space (revised on Belal, Shirahada, and Kosaka, 2012)

used to produce services that provide solutions to the consumer, thus creating value. Therefore, here, we redefine KS as a set of knowledge co-creation processes as shown as Fig. 3.

It has been stated that, a KS can be used to gather and co-create knowledge (experience, competencies, and needs-wants-demands) among partners. This is how a manufacturer can maintain continuous value creation with beneficiaries. The manufacturer needs to determine what value is required by customers, what knowledge is required in order to co-create it, where the companies need to change, and who will be an ideal partner. Thus, the management of KS is a key factor in successful servitization.

3.1.2 Service oriented HR skill development key factor

In a typical manufacturing company, employees are mainly expected to use skills related to engineering and business design. In the current services focused economy, where manufacturers are aiming to transform themselves by offering service-based value, human resources and leadership that have the capacity to meet the customers' service needs are required. Therefore, in order to generate a service culture within a firm, one of the first steps the firm should take is to cultivate service skills within their employees.

When it comes to developing service skills within HR, it is important to clearly understand the value of difference between G-D logic and S-D logic. Vandermerwe and Rada (1988), Oliva and Kallenberg (2003), Gebauer, Fleisch, and Friedli (2005), Neely (2007), Pawar, Beltagui, and Riedel (2009), Belal, Shirahada, and Kosaka (2012), have

argued that, adding service with tangible goods is effective technique for value creation. Manufacturers should transform their organizational structure from a G-D logic viewpoint to S-D logic one to confirm the service value culture. In the concept of G-D logic, value is defined by goods only, on the basis of value-in-exchange, while in S-D logic, the value of service is determined by the customer on the basis of value-in-use (Vargo and Lusch, 2004), which is core to the practice of service culture within a business. Therefore, understanding G-D and S-D logic can motivate employees to rethink how they approach their business.

In the development of service skills, companies should carefully consider services oriented business model thinking. Chesbrough (2012) stated that, business model performs two important purposes: value creation and the capturing of a portion of that value. The value creation part includes a series of activities that is covering the range from raw materials through to the final customer to produce product or service. The capturing of portion part is requires to establish a resource within series of activities. A business model designates the validation of how a company generates, and offer value (Osterwalder and Yves, 2010). Zott, Christoph, and Amit (2010), articulated about business model within all partners aspect. The product-based organizational business model is generally designed for creating and capturing value by goods. The current global business environment suggests that most manufacturers wish to transform their business vision from product value oriented to service value oriented so as to innovate their processes and products through business model reconstruction as a service-based view. In this sense, training employees to think in a services oriented business model way is key. This is particularly important for front line employees, as they are directly related

with the market function in many ways as the ‘public face’ of the company.

The IBM is a good example for service oriented business model innovation thinking. World’s leading computer and technology firm IBM’s business model was based on offering computer products and its maintenance services until 1990. IBM management came to realize that full range of total solutions including technical support, training, know-how, and knowledge is required by market. In this purpose, the company developed skills to provide support, training, solution, know-how, and knowledge to their consumers and transformed IBM’s business model as translate the organizational business vision. Doing business according to this innovative business model, today IBM is offering service-based solution (e.g. business services, IT services, outsourcing service, training and education, financing, consulting, and all services (source; IBM, <http://www.ibm.com/us/en/>). Thereby, it signifies itself as successful servitized company.

From above discussion, it is impeccable that, the skill development assignment is a core work in organizational servitization process. The more evidence we can add here, for example; Magnusson and Stratton (2000) analyzed that, “external focus, customer accessibility, and solution orientated thinking” (Magnusson and Stratton, 2000; p.52) based skill should be developed for employees if a company wants to deliver service value to customers. Mills et al. (2008) also stated about the skills in servitization process, they argued, there is a need of importing and sustaining new service skills. As traditional manufacturing organized its infrastructure according to product regularization rather than customization of service-based solutions. Camuti’s (2006) recommended that, when a company wishes to gain global business competitive advantages, then it should prepare future engineers with additional skill sets (e.g., behavior, physical condition,

psychological attributes, leadership, teamwork, motivation, communication, [Baines et al., 2013]) further than traditional technical capabilities. Thus, according to servitization question, the service oriented business skill development within HR is need to think as priority basis.

3.1.3 Corporate collaboration key factor

With the aim of achieving servitization, companies are recognizing market demands and expanding the market by adding consumers to the process of knowledge creation. This is not always easy, as there are limitations when it comes to continuously retaining knowledge in the knowledge creation process. The accumulation of resources by which a company can turn a consumer desire into a value package is essential. The integration of knowledge, skills, technologies, finance, experience, and much more is a core mechanism to ensure organizational resource availability. These resources work to improve existing capabilities and create new knowledge through the knowledge co-creation process, thereby creating the required service as a solution for customers and promoting mutual value through beneficial relationships.

Regarding resources integration, Constantin and Lusch (1994) conceptualized that, resources have been viewed as the things of tangible that humans use for support. The resource is tangible or intangible anything that an actors (providers or recipients) can draw on for support (Vargo and Lusch, 2004). For example, intangibles such as customer experience, corporate culture, corporate philosophy and tangible such as hardware can be considered resources. The S-D logic shows the difference between operand resources and

operant resources. In this concept Vargo and Lusch (2004) described, operand resources are almost tangible and motionless (e.g. physical or natural resources) that an operation acts to performed for producing an effective result and operant resources are frequently intangible and dynamic (e.g., participants knowledge, skill, and competences) that performed with other resources to produce better result. From above discussion, we can argue that, the resources are all hard and soft strong points of an organization that become as source to produce vital solution according to market requirement that ensure value for all participants.

It is needed to create value by cultivating of resources according to meet current market demands. We suggest that, company should create a ‘service value system’ to cultivate resources along with other aptitudes for fabricating service. It has been indicated that, service is core for value creation and knowledge is dynamic force to produce service. In addition, we also have argued that, in the way of co-creating knowledge the resources integration is needed. Which is mean, resources integration shows the ways and means to firms about resources utilization for service oriented solution manufacturing.

The integration of resources is a decision-making issue of the top level management and requires the taking of strategic action (Belal, Shirahada, and Kosaka, 2014). They have also stated that, collaboration with ideal partners is an effective mechanism to manage necessary resources. They feel that service providers should engage in corporate collaboration with companies in different industries or with different departments on the basis of context. For example, a company may already have technology-based resources, but to transform itself into a producer of true value for customers, it also needs knowledge-based resources. In this position, the company should

manage its knowledge-based resources with an aim to enhance its service culture to the point that it enables the generation of new knowledge.

Agreeing with this concept, we will provide an imaginary example. Product-based organization in Fig. 5 wants to be a servitize firm by providing a complete value package through its solution to recipients. The knowledge space (KS) management analyzed that, it is not ready to produce such solution that can create service-based value for customer due to its shortage of resources. The company has technology and market, but it needs the finance, know-how, and service skills to achieve the required solution. Accordingly, this organization made collaboration with other identified different organizations or departments. Through practicing the collaboration approach, all parties shared their competences to attain the necessary resources. In so doing, develop knowledge co-creation process in the way to support new knowledge with 'service value system'. Then, company becomes able to produce required service as value for customers. Thereby, the product-based organization transforms as a servitized firm. Thus, corporate collaboration centered on a service value system is an important factor for servitization.

3.2 Relationship among Key Factors for Servitization

It has been described that, the main aim of servitization is to offer customer focused value by adding service on core products of accompany (Vandermerwe and Rada, 1988). According to this vision the company can no longer act separately (Prahalad and Ramaswamy, 2004) without ensuring co-creation of knowledge by dint of common abilities of stakeholders. Because, at present the company might only considered to offer products along with ‘servicing’ rather than customer focused value.

We also has been suggested that, in the practice of servitization, there is the need for a ‘service value system’ that would help participants interact with each other to understand, manage, process, and co-create knowledge continuously. In this way, a company could achieve a set of knowledge co-creation processes and cultivate new knowledge to design a customer focused service as a fuller market package that ensures user value, including new market creation. This would essentially transform the company into a servitized firm. The entire process of organizing service-based value on the basis of knowledge co-creation is denoted here as a ‘service value system’.

The management of KS plays a fundamental role in the building of a ‘service value system’, since KS enables the creation of a set of knowledge co-creation processes among collaborative partners. Knowledge co-creation is intended to create new knowledge, so companies consider KS management to pertain to what service they are going to produce for customers as their requisite value. To provide this service, what or where the company’s organization is needs to be altered. In addition, it needs to be determined what resources are needed and from where the organization can obtain the

required resources. That is why, a worthy management of KS is fundamental role for company towards achieving enhances service as customer value. For example, Telenor is a Norway-based multinational mobile phone operator. The company wants to extend its business lines in Asia. They choose Bangladesh market as of one of most profitable growth markets. According to wish of innovating and expanding business in Bangladesh market, Telenor detected that, they are with advance technological know-how, managerial expertise, effective strategies, and financial solvency but it more need to regulation supports, market, and experience of Bangladeshi market. Telenor also realized that, the Grameen group of Bangladesh are with necessary resources including brand name value. Which could help them to meet their goal. Telenor made collaboration with Grameen group and integrated their mutual resources in the way to knowledge co-creation process. By this means, it built a new telecom company called ‘GrameenPhone’, which worked as a ‘services value system’ and this new telecom business line promised to ensure service as value package for subscribers. Therefore, KS management leads to make ‘services value system’ for business innovation of a company.

This study has declared that, there is necessary to identify the knowledge and skills gaps for transformation of typical manufacturing companies from product oriented view to service oriented view. Minimize those gaps by dealing with complex service systems, where service related skills are required. Regarding servitization process, company’s primary assignment is to understand customer, customer value, and generate service idea based on contacting market requirements. Human resource (HR) including top level management performs core duty of it. After service idea generation the further work process, e.g. how and what activities are needed to implement this developed idea

as customer required value, it also managed by the HR. In this incident, company should improve their HR as service oriented business skill based. In addition, according to KS management analysis that we have explained in previous discussion, the development of HR skills is a key component of service-based value creation for customers. If they lack service oriented skill, employees can neither determine a customer's required value nor generate service ideas that provide genuine feedback to the company or the recipients. Therefore, companies have a duty to make a concrete plan (e.g., business vision sharing, strategies for technological advancement, specialist networks, etc.) to develop service oriented business skill among their employees. This is mandatory in terms of knowledge co-creation as a path to building a 'service value system'.

We also detailed in our study that, manufacturing companies are looking for activities that increase services to help them shift from being a typical goods seller

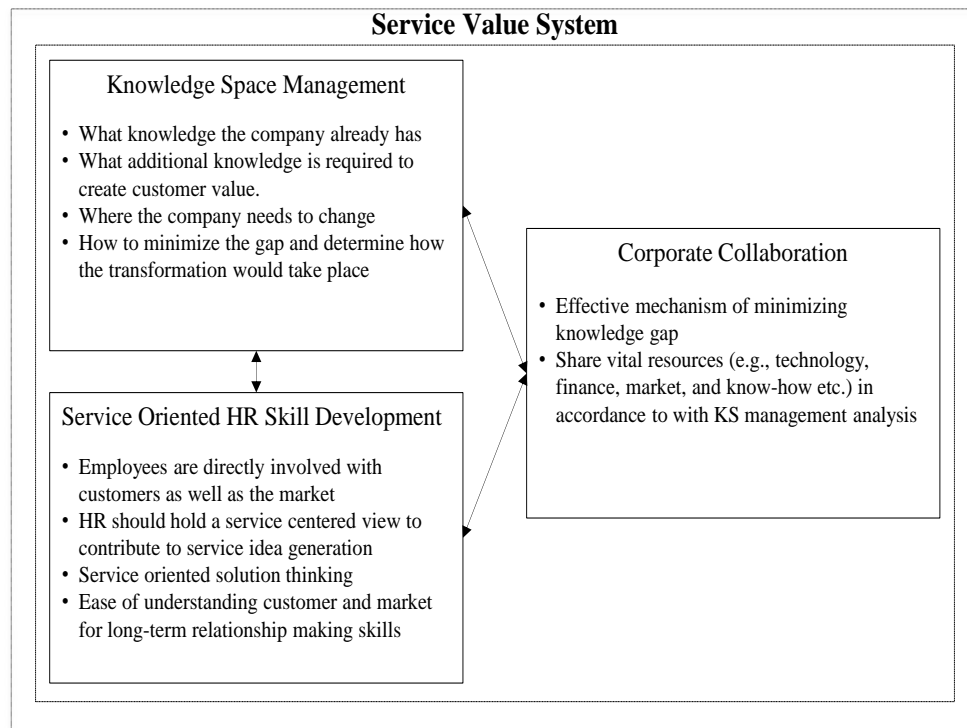


Figure 4: Relationship among key factors for servitization

towards being a value provider (Belal, Shirahada, and Kosaka, 2014). Since manufacturers originally intended to offer only traditional goods rather than a service-based value package, this shifting process is an enormous task and additional resources are required for it. This is a completely new and different business philosophy for the manufacturing companies. To meet this different view, Baines (2007) and Nelly (2008) suggested that, company must extend its existing capabilities and processes to form a common value. In one step ahead Belal, Shirahada, and Kosaka (2014) stated that, in the aim of run into this beliefs, the company needs to build an effective 'keeper of value system' that is able to produce and offer a service value rather than a typical products. In addition, firms must always remain in a dynamic-capability building mode, retaining their capacity to renew their resources. Therefore, KS management is used to analyze a company's resources gap and then determine how to arrange its current resources. Obtaining the required resources through collaboration with companies in different industries is an effective way of doing this. In such collaboration, stakeholders share their resources with the organization (provider) and utilize it in the process of knowledge co-creation according to the requirements that have already been identified by the provider. This process of combining all tools and activities results in a 'service value system' that can create knowledge focused service for customers and give birth to new business opportunities.

From the above explanation, it is clear that, the KS management, service oriented HR skills, and corporate collaboration are inter-dependent when it comes to building a servitization management model, as shown in Fig. 4. This is a key step in the creation of servitization opportunities in the manufacturing industry.

3.3 Knowledge Focused Servitization Management Model

The knowledge focused servitization management model (shown in Fig. 5) is consist of knowledge space (KS) management (internal-external issues), service oriented human resource (HR) business skill development (internal issues), and the corporate collaboration centered on service value system (external issues).

When a product-based company wishes to become a service-based value provider and extend its business lines, it should consider facilitating this adjustment with a ‘service value system’, since such a system ensures a set of knowledge co-creation processes by which the company is assured of creating new knowledge. This innovated knowledge is drives the generation of new services. In this way, a product-based company can transform itself into a service-based value provider and can enter more markets in many new wings of business.

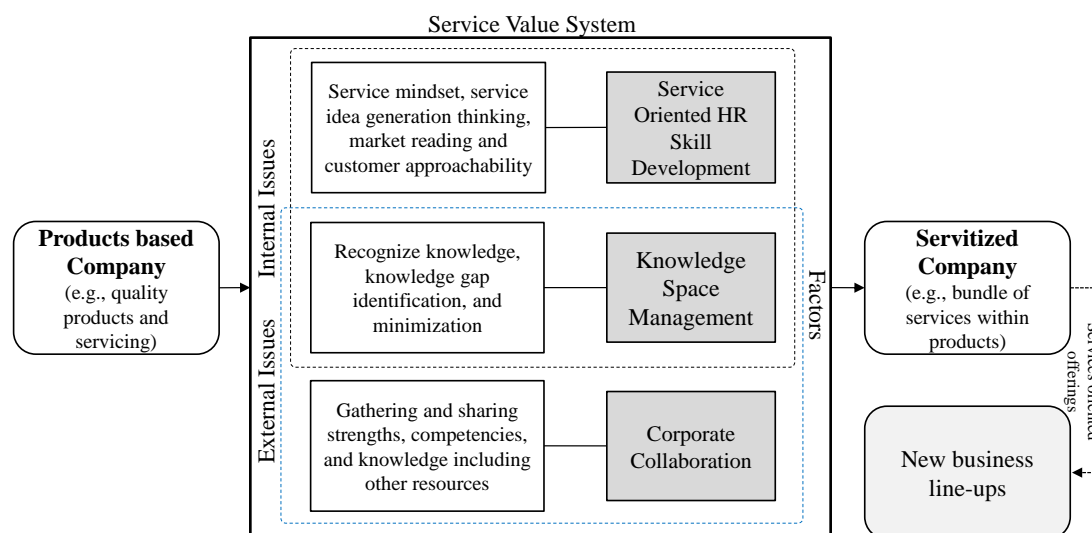


Figure 5: Knowledge focused servitization management model

To develop a ‘service value system’, a firm needs to manage three key factors: KS management, service oriented HR skill development, and corporate collaboration.

In a company’s process of transitioning from product-based to service-based, or from G-D logic to S-D logic, it needs to recognize that a company’s organizational modification is necessary and determine how that modification should take place. The KS management corresponds to internal and external issues. A company can clarify its knowledge, including skills that they already have and those that they need to develop in order to create the value that consumers desire, through KS management. Then it takes steps to become capable of co-creating knowledge via organizing skill development and corporate collaboration.

In a product-based company, employees are mainly with technical and traditional business design-based skills. This is in contrast to the service oriented mindset and skills, which we consider an internal issue and are major requirements for employees in the practice of servitization. In service value creation tasks, employees are directly (front-line employees) and reasonably directly (top management, leaders, manufacturers) involved with customers and with the market. Therefore, all employees should have a service centered view that enables them to contribute to service idea generation, service oriented solution thinking, and ease of understanding customers and the market so that they can develop long-term relationship making skills. Service oriented skilled HR is included in every step of a firm’s service view business operation.

The company has already learned through KS management that they need further resources in order to make a new knowledge creation platform and renovate its business into a ‘different way of thinking’ (Belal, Shirahada, and Koska, 2014, p.24), that is, to

change from G-D logic to S-D. This is a significant external issue in servitization management. The effective mechanism here is to gather the required resources through collaboration with companies in different industries (Belal, Shirahada, and Kosaka, 2013) or inter-organizationally between different departments. In this manner, companies share their vital resources and collect them in a single space as a source for the knowledge co-creation process.

As stated above, KS management, service oriented HR skill development, and corporate collaboration are all connected. If a manufacturing company can perform well in all three areas, it can overcome its internal and external issues and obtain the necessary components to achieve successful knowledge co-creation. The entire practice of knowledge co-creation as a means to new knowledge creation is forms the ‘service value system’. The new knowledge has a big effect on service innovation along with the products offered to customers as the solutions they require. Thus, by attaining a knowledge focused servitization management model, a product-based company can transform itself into a service-based one.

3.4 Summary

We conducted a deep analysis in the aim of develop a verified and effective knowledge focused servitization management model. The analysis of the result shows that, in order to transform a manufacturing firm from product-based view to service-based view, there is need to achieve the servitization opportunity and a knowledge focused servitization management model is effective for it.

The knowledge focused servitization management model is consists with three key factors namely; Knowledge space (KS) management, service oriented HR skill development, and corporate collaboration centered on service value system. KS management works to comprehend the knowledge as well as skills that the manufacturers already has and that needs more to generate new knowledge. According to KS management's recognitions the company takes steps to develop employees' service oriented skills with their manufacturing-based skills. In addition, the service provider makes an agreement for collaboration with companies in different industries or with inter-organizational different departments for gathering necessary additional resources. Accordingly, a manufacturing company comes as full capable to overcome organizational internal and external issue that usually faced by product-based company in its service-based transformation journey, and finally the company attain knowledge co-creation process. The complete exercise of knowledge co-creation process is called the 'service value system' in this study. This system creates new knowledge by follow-on knowledge co-creation process, thereby creating a customer attentive service and originating new businesses lines-up of the company.

Chapter 4

Application in Japanese Monitor Maker

4.1 Initial State

Company -A is a leading monitor maker in Japan. In 1968, it began as an original equipment manufacturer of black and white televisions. The company expanded its business to overseas in 1984 to take advantage of on a global PC revolution. In the following year the company started to sell its display monitors by taking different strategies for North American and Europe market (Company History, 2014). For example, sold its monitors in North American and Europe market with different brand name.

One of its core competencies is the development of imaging equipment such as computer monitors. The corporate management of Company A is focused on product innovation as a means of creating a new business market. It has always been committed to differentiating themselves from their competitors through innovative products and services. Today, Company A enjoys a strong reputation around the world for its high-

quality visual display systems.

Dramatic changes in market requirements and economic growth are having a big effect on the mindset of prospective customers. While customers do not want to pay enough out of big capital expenditure budgets, they have agreed to lower value service prices from operational expenditure budgets (Wood, Hewlin, and Lah, 2011). Manufacturers are changing their philosophy as value produces by product-service systems (Baines, et al., 2007), and we stated earlier that, organizations should transform their business from a G-D logic viewpoint to S-D logic viewpoint (Vargo and Lusch, 2004) to stay relevant in the service value climate. The situation is no different in the monitor market, where there are also emerging challenges and monitor manufacturers are facing competition when it comes to holding their ground in the global market. Many companies are trying to deliver customer value via knowledge co-creation. For example, the main competitor of Company A is working with the hospital industry and creating a new service system aimed at building a fun environment for patients, although the core business remains monitor making itself.

Company A realized that it has to become more global and decided to try and gain a competitive advantage by transforming its business nature from the G-D logic view to the S-D logic view. The management of Company A have undertaken activities to achieve their goals and believe that by successfully completing these activities the firm can transform itself into a service-based value provider.

4.2 Process

4.2.1 Service innovation chart

Belal et al. (2014) have briefly discussed about the service innovation chart (SIC). They articulated from the view of innovation. They stated that, innovation is an approach and it leads to new services including the service quality improvement. They also stated, a SIC is the integration of individual types of service oriented thinking, as shown in Fig. 6. Understanding and designing the service innovation in order to value creation of a company begins with a chart showing the organizations involved with its capabilities and actions that generate to the value proposition. The utilization of SIC and its view varies on organizational context, e.g. an electronics goods maker's questions answers seeking and a health care equipment manufacturer answers seeking is not same. With the viewpoint of Company A in mind, we have developed a SIC in an attempt to answer two questions: where is value being created, and what is the proper way for it to become a part of the service value chain (Belal et al., 2014).

In the traditional viewpoint of business, value has usually been viewed as the assembling of a fixed set of goods that is delivered by suppliers and distribution channels (Belal, Shirahada, and Kosaka, 2014) or value has viewed on G-D logic basis. For example, Samsung offer innovative products as value with technology and process innovation, and they manage value chains through responding rapidly to ever changing strategic challenges. There is no question about its products innovation capabilities or products quality, but the service that is truly required by customers and their long-term

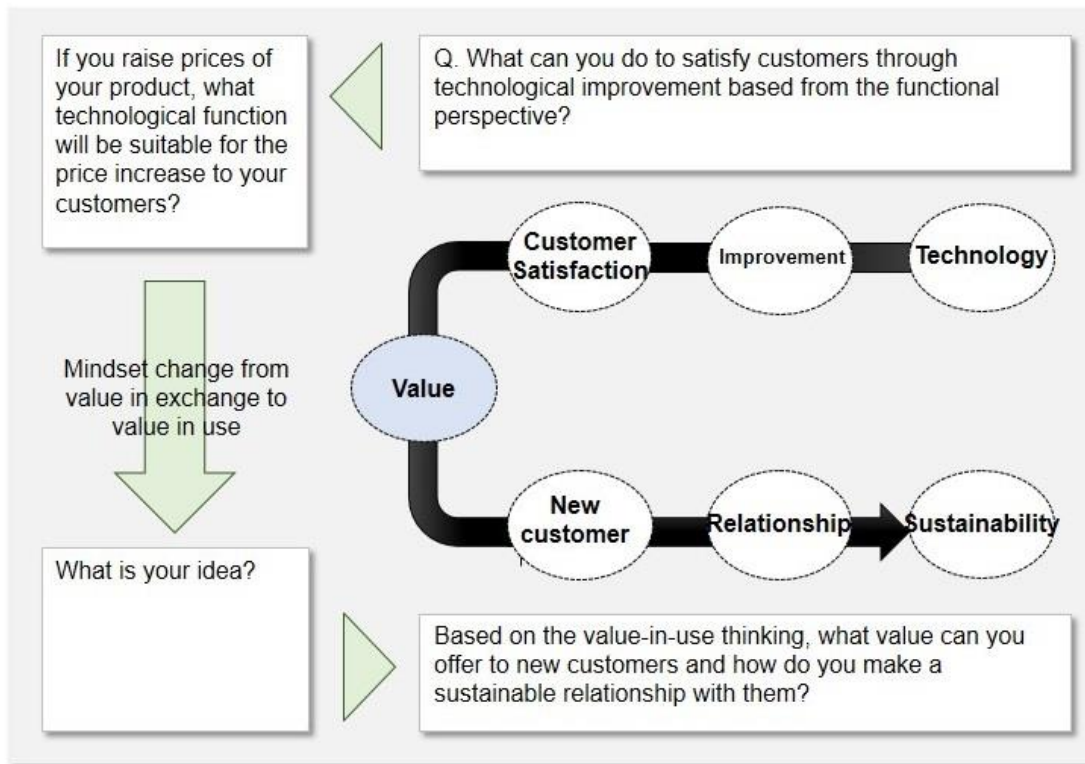


Figure 6: The major contents in service innovation chart

sustainability are still big questions.

We have detected that, this thinking is one kind of business poor sight view as for corporate sustainability. In current business trend, the company should meet the recipients' requirements by offering a service-based value package.

In this case, if an organization recognizes, produces, delivers, and successfully manages recipients' values from a sustainable business view, then all of those activities are included in service value innovation or company should recognize to create recipients' value from the viewpoint of S-D logic.

In SIC approach, a company should incorporate the concept of G-D logic-to-S-D logic for service value innovation with the assist of business model (BM) thinking. This

chart describes that, in G-D logic-based goods, producers are indicating to technology as a core tool of value creation. From this perspective, they are considering economic gain as the main target. Consequently, the organizations are developing technology that suits for their customer segments and offering products as value to recipients. On the other hand, when manufacturers want to produce customer focused value then they must consider about S-D logic. Based on the S-D logic concept, manufacturers are starting to think of the value propositions for existing and potential customers. They give more priority to building a continuous relationship with stakeholders', aims to gather up-to-date knowledge applicable to long-term sustainability (Belal et al., 2014). Thus, the SIC confirms value proposition thinking and service idea generation as source of knowledge co-creation process for service as customers value.

4.2.2 Business model thinking

Here, we will articulate our concept of the business model (BM) in terms of its importance in the action research process. Due to global market changes and with the aim of corporate long-term sustainability, the organization often makes significant efforts to innovate their processes, their products, and their entire business model. Shafer et al. (2005) noted that, business model innovation thinking is the process of exploring possible business model alternatives that can be trialed to commercialize any given idea prior to going out into the market and expending resources.

It is known that, the world is becoming more service oriented, and the growing importance of services is a key strategic trend witnessed in the past few years (Elche and

González, 2008). Innovation in service essentially helps produce new value for users (Kosaka et al., 2013). Manufacturing and service organizations that continue to offer only goods or services are finding it increasingly difficult to remain competitive. Companies need to move up to the value chain and differentiate themselves on the basis of value offered (Porter and Ketels, 2003) as servitized value by providing fuller market packages (Vandermerwe and Rada, 1988). In other words, companies need to consider new business models from the point of view of service orientation.

‘BM thinking’ is an effective way to generate a service-based business model. We revised the concept of BM thinking based on Osterwalder and Yves’s (2010) business model generation canvas as shown in Fig. 7. In the chart, the olive green area is used for value propositions thinking for customers, the gray areas are used for thinking of a new value proposition based on current resources and knowledge while the white areas are used for thinking based on new resources and knowledge. The revised ‘BM thinking’ helps to clarify what a company is doing in the present situation and what and where they need to change in order to meet the proposed value. Once this has been clarified, a company can build a ‘service value system’ through the use of SIC. Therefore, ‘BM thinking’ supports companies in the product or service innovation game by helping them create and deliver service value in order to stay ahead in the market (Belal et al., 2014).

We would like to consider the technology company as an example of business model innovation thinking. The world of technology services is moving speedily as on premise technology moves to the cloud and as up-front application and user authorization payments are replaced by micro-transactions (Wood, Hewlin, and Thomas, 2011). This mean that cloud computing is a new paradigm and an emerging technology that flexibly

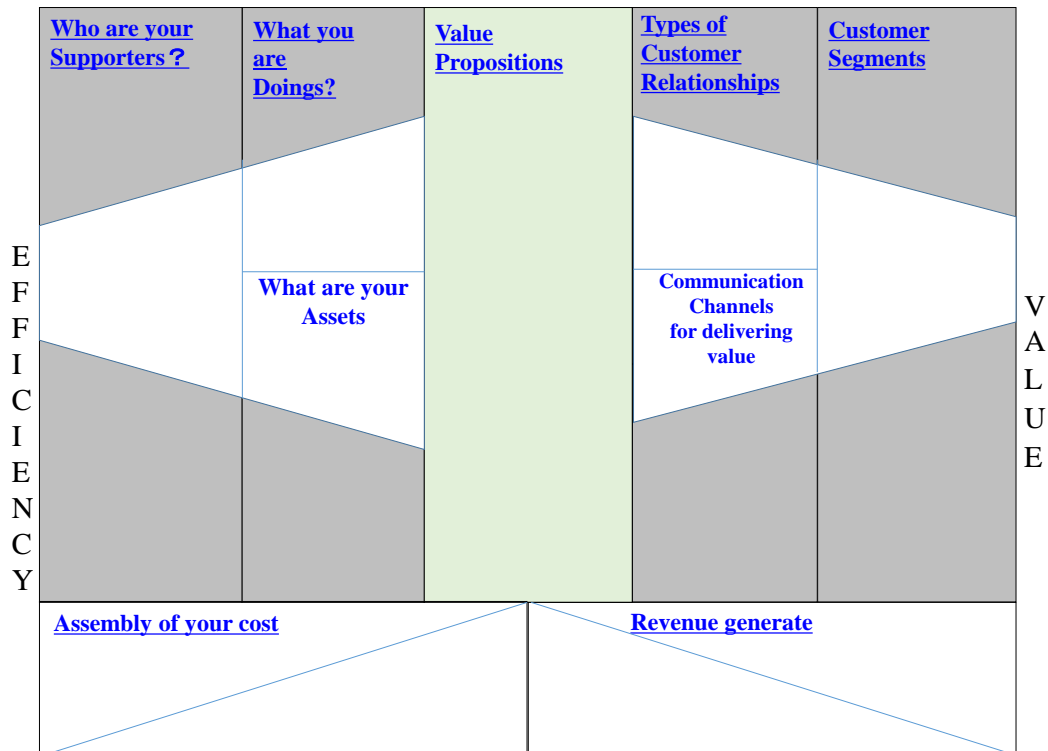


Figure 7: Business model thinking tools*

*modified Osterwalder and Yves's (2010) business model generation

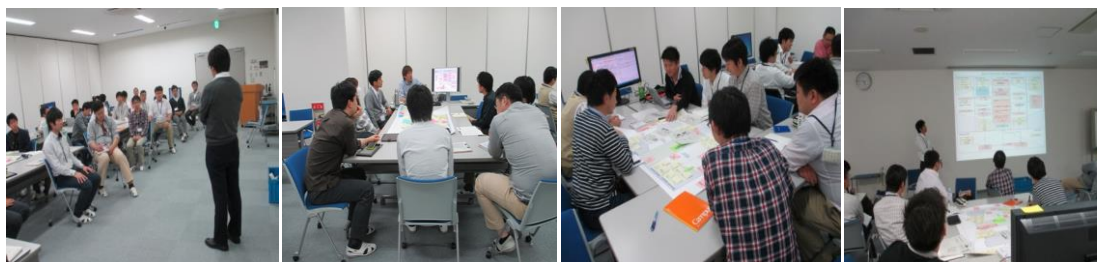
offers information technology (IT) resources and services over the internet (Fenn et al., 2008). In this position, achieving the breaking up of the traditional value chains and self-transformation into sophisticated ones, the technology company requires to develop a new refined service oriented business models of technology.

In addition, consider the DSM RIM Nylon Company as a one more example. The company is innovated its traditional business model thinking for defusing new innovation and differentiating the market offering through service-based value that made itself into a successful servitized company. Today, the company is providing service range from assessing the feasibility of the system through their training personnel (Vandermerwe and Rada, 1988) even though their main business is the chemical itself.

4.2.3 Procedure

At Company A, we started our action research project that consisted of a service innovation and training workshop, in April 2013. After a series of activities, 1st term data were collected between September and December 2013, followed by 2nd term data collected in September 2014.

In our actions, first, we delivered several lectures on service innovation and introduced our methodology of the service innovation chart (SIC), service approach, and business model (BM) thinking to 25 personnel in the technology development department of Company A. In the second meeting, we divided the 25 personnel into three groups and provided each of them with individual and collective assignments related to SIC and BM thinking. According to this assignments in third gathering, they prepared feedback about service thinking, service value proposition, idea generation thinking, and knowledge integration of about how to transform the current company A's business model into a service-based business model. In the next workshop, each group presented their views on mentioned space including questions and answers as shown in Fig. 8.



Steps of actions over time

Figure 8: A part of action research procedure with Japanese monitor maker

Table 4 Feedback form (December 20, 2013)

About the service innovation chart (SIC)	
[1]	The chart makes me think of new things.
[2]	It was easy to fill in the blanks in the chart.
[3]	The chart is useful for promoting service oriented thinking.
About the business model (BM) thinking generation framework that we used	
[4]	It was effective to overview this company's way of doing business.
[5]	It enabled me to discuss with others about my opinions.
[6]	The framework has a close relationship with the SIC
About the lecture series and its outputs	
[7]	It is enough to take four classes on thinking service innovation.
[8]	Our company highly needs this lecture series.
[9]	The final output was beyond my expectations.
[10]	I could take part in discussions about important things for the future of this company.
[11]	I could acquire my own understanding about the concept of service.

Responses are given by indicating agreement with statements using the Likert 5-scale [from disagree (1) to agree (5)]

After these activities, we asked all participants 13 service business related questions, including 11 pre-coded queries and two open interrogations. Here, we mainly focus on the data from 11 pre-coded queries as shown in Table 4.

After the 1st term data collection, we observed and supervised each group regarding their development as well as the progress of their service centric mindset and skills of service idea generation thinking, including service oriented business model creation, through attending improvement presentations every month until September 30th, 2014.

We conducted the 2nd term and final feedback questionnaire (shown in Table 5) from September 9th to 19th, 2014, with 20 participants. The aim of the final feedback questionnaire was to evaluate how much the technical personnel were able to develop their service-based skill and what still needed to be practiced or adjusted from the organizational as well as individual viewpoint in order to transform the manufacturing company into a service-based value provider. The questionnaire consisted of four parts.

The first one is include about the change of knowledge exploration in their work. The second part is about imagination of action plan for doing new service business. The third part is about the difficulties for servitization and the last one is about the motivation for keeping service innovation practice. On September 30th, 2014 we held a final progress meeting and presented the results of the final feedback questionnaire.

Table 5 Feedback form (September 9th to 19th, 2014)

Feedback questionnaire September 9 th to 19 th , 2014	
1.	<p>What experience have you gained through this workshop? Please check the relevant items below and provide detail in the box.</p> <ul style="list-style-type: none"> - Developed own confidence and expertise - Overcame departmental barriers - Overcame organizational barriers - Overcame other barriers () <p>(Please specify in the box below.)</p>
2.	<p>In terms of the transformation into a service oriented business that you are going to propose, what needs to be practiced and implemented from the organizational and individual viewpoints? Please provide detail below in the boxes.</p> <ul style="list-style-type: none"> - Organizational viewpoint - Individual viewpoint
3.	<p>What were the most difficult concepts to grasp in this workshop? Please check the one item that is nearest your thinking and explain the reason in the box below.</p> <ul style="list-style-type: none"> - Ideas related to technology perspective - Ideas related to revenue generation (monetary and non-monetary) - Ideas to develop HR within the organization - Ideas on how to involve customers - Others ()
4.	<p>The theme that have been investigated by your team, what attems would you like to take for continue in future. Please check one item in bellow</p> <ul style="list-style-type: none"> - Not thinking to continue - Want to do inividually in my own business - Want continue within our team - Others () <p>(Please write the reason here)</p>

4.3 Evaluation

After collecting the company A's personnel's 1st term feedback, we analyzed it by using SPSS software. Because of the limited sample size, we used descriptive statistics to analyze the effects of our action research. The results are shown in Table 6 and Table 7. From the affirmative ratio, this was computed by summing the degree of 'relatively agree' and 'agree'.

According to the results, we found that eighty eight percent of employees agreed that the service innovation chart (SIC) contributes to thinking of new things regardless of any difficulties in filling in the chart. Only four percent agreed that filling in the blanks in this chart was easy. In addition, eighty percent of employees agreed that this chart is useful for promoting service oriented thinking that may contribute for company's S-D logic-based business generation view.

Table 6 Results of feedback (N=25)

Questions	Affirmative rate %
<u>About the service innovation chart (SIC)</u>	
[1] The chart makes me think of new things.	88
[2] It was easy to fill in the blanks in the chart.	4
[3] The chart is useful for promoting service oriented thinking.	80
<u>About the business model (BM) thinking generation framework that we used</u>	
[4] It was effective to overview the company's way of doing business.	96
[5] It enabled me to discuss with others about my opinions.	92
[6] The framework has a close relationship with the SIC.	48
<u>About the lecture series and its outputs</u>	
[7] It is enough to take four classes on thinking service innovation.	16
[8] Our company highly needs this lecture series.	92
[9] The final output was beyond my expectations.	56

Ninety six percent of employees agreed that the business model (BM) thinking is effective to overview the company's way of doing business, ninety two percent thought positively that the 'BM thinking' enabled them to discuss with others about their opinions regarding current business and its sustainability, and forty eight percent reflected that as this framework provide outline of doing business including company's value proposition and what knowledge are available currently in company and what further knowledge or ideas required to meet proposed value. Hence, it has a close relationship with the SIC.

Additionally, sixteen percent thought that four lectures were sufficient for thinking of service innovation, ninety two percent of employees believed that this kind of service lectures are highly needed for their company that help to share service knowledge and thereby achieve employees' service mindset, and according to lectures output, fifty six percent said that the final yield of the lectures was beyond their expectations.

In the correlation coefficient analysis, it is shown that, there was a moderately

Table 7 Correlations among items (N=25)

Category #	Items	1	2	3	4	5	6	7	8	9
SIC	1 Effect for innovation thinking	1								
	2 Easy to use	<u>-.365</u>	1							
	3 Effect for service thinking	-.354	.284	1						
BM thinking	4 Effect for overviewing	-.098	.026	.239	1					
	5 Effect for group discussion	-.224	-.073	.144	.211	1				
	6 Relationship with SIC	-.059	.277	<u>.508</u>	.240	.016	1			
Others	7 Time restriction	.144	.360	-.157	.008	-.337	<u>.323</u>	1		
	8 Need for service knowledge diffusion	-.243	.209	<u>.418</u>	<u>.455</u>	<u>.468</u>	.118	-.107	1	
	9 Output quality	.035	.054	-.004	-.011	.137	-.100	.197	.167	1

positive relationship between items 3 and 6 ($r=0.508$). This result indicates that there is some relationship amongst our activities introducing the service transformation concept, business model thinking and the fostering of service oriented thinking. In addition, the correlations between items 3 and 8 ($r=0.418$), items 4 and 8 ($r=0.455$), and items 5 and 8 ($r=0.468$) show relatively strong relationships. There was a weak inverse relationship between filling in the blanks in the SIC and the effects of this chart for innovation thinking. The effects for promoting service oriented thinking and innovation thinking also had a weak inverse relationship.

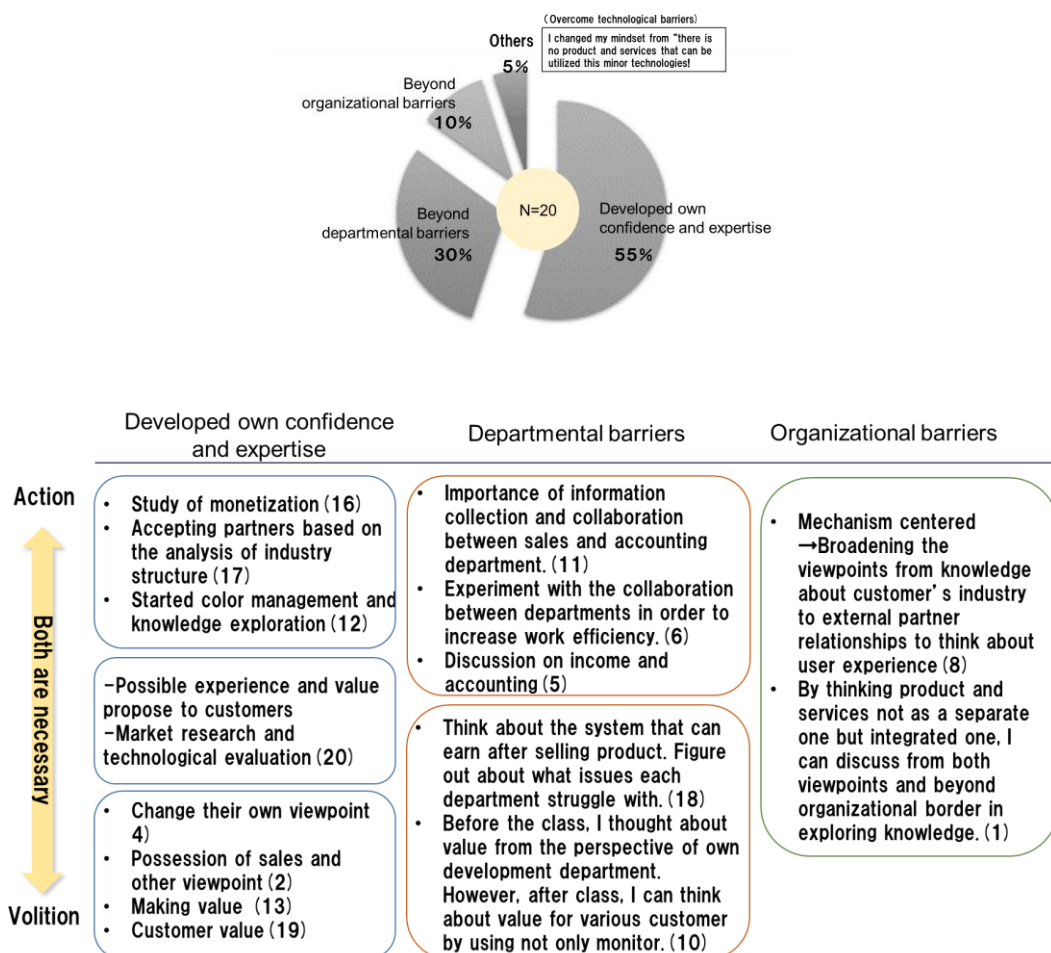


Figure 9: Beyond barriers experience in service oriented thinking process

In terms of the 2nd term data, in this study we only analyzed feedback question 1 and 2 in this thesis. Regarding questions feedback 1 (Fig. 9), more than half of participants realized that they have explored knowledge by beyond their expertise in order to come up with the idea of new service. The 30% of the participants, they recognized that they have experienced to explore the knowledge by beyond their department relationships. Others 10% of participants have explored knowledge by beyond their organizational dealings. We have categorized the detail of beyond barriers experience in service thinking process by action and volition perspectives. We originated that, there was a successful evidence in behavioral level, such as; technical personnel behave to study different fields' of knowledge including finance and other expert technical knowledge and also analyze industrial research for seeking customers' problems. This kind of acts seems to be related to sales and marketing division's development rather than technology improvement department. However, technical personnel change their mindset and beyond other knowledge fields to have deep understanding about service-based value for customers.

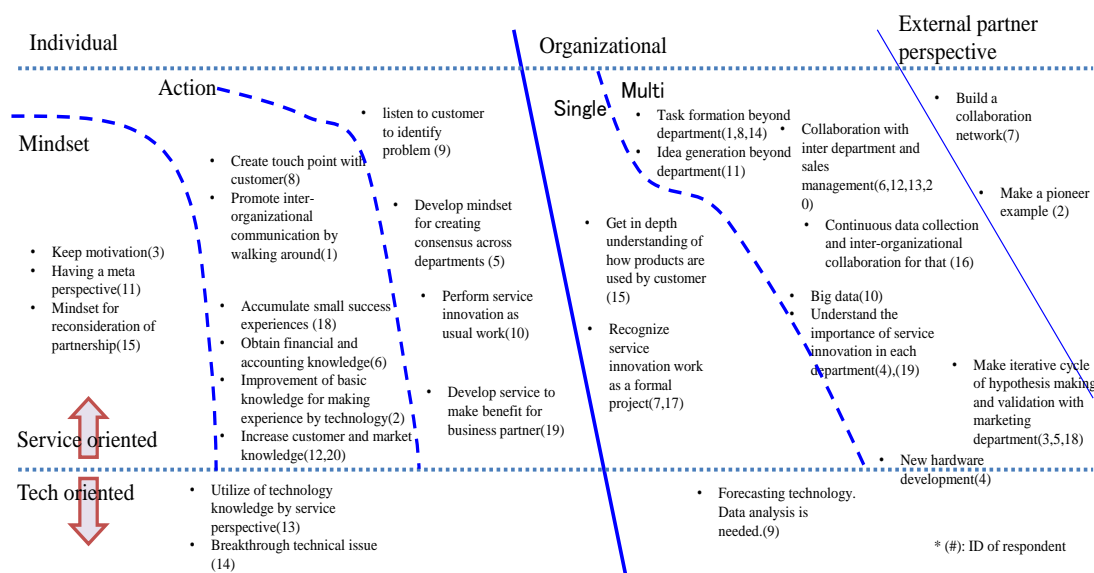


Figure 10: Action plan for service innovation in individual and organizational perspective

We indicated a question of action plan for participants that, in terms of the transformation into a service oriented business, what needs to be practiced and implemented from the organizational and individual viewpoints in questions feedback 2. As shown in Fig. 10, there were many interpretations beyond just the mindset of service idea generation thinking when it came to the individual viewpoints. For example, comments such as *“Listening to the customer to find out the problem”*, *“Perform service innovation as usual work”*, and *“Service development is beneficial for business partners”* indicate that these technical people were able to obtain service oriented thinking skill on both the conceptual and the behavioral level.

In addition, when it came to the organizational perspective, technical personnel were able to recognize service-based value in light of customer focus and generate solutions for this realized value by involving multiple departments within the company. It became clear that the company needs to make a collaboration network for gathering and supporting further knowledge in terms of transforming existing capability into service-based value creation. Remarkably, participants made several observations about technology oriented thinking or technology knowledge from the perspective of service-based value offerings.

We found from this analysis that, through practicing SIC and the BM thinking approach, Company A was able to pinpoint the value they wanted to propose to their customers. Our approach helped foster a service mindset and service oriented thinking in the employees in addition to the technical skills they already possessed. Company A came to understand both the knowledge they currently had and the additional knowledge they needed to acquire in order to provide the declared value. They also recognized that

collaboration is required to support additional knowledge for service oriented value creation.

Therefore, our action research supported to achieve a KS management, and employees service oriented skill development factors for company A. As a result, Company A has now successfully created a service-based value offering climate as shown in Fig. 11.

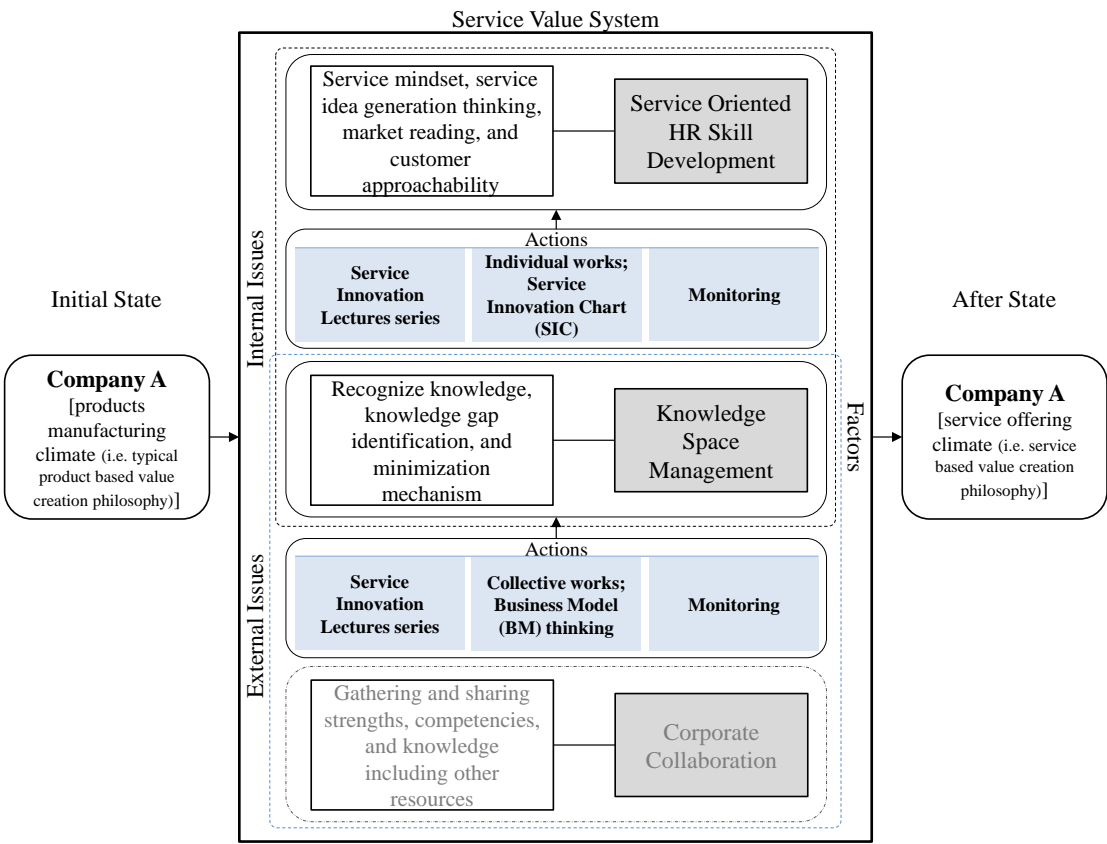


Figure 11: Approach to create service climate in organization

4.4 Summary

We conducted an action research with a leading Japanese monitor maker named company A. This study is conducted in response to the methodology of transforming the way of thinking and supporting knowledge creation for new corporate value propositions of a technology-based company. We developed methods to create service-based value offerings climate in organization through the arrangement of service innovation chart (SIC) and business model (BM) thinking. SIC helped to personnels' regarding understand about customer or market value including where and what is value being created. The 'SIC' also promoted individuals services oriented thinking and idea generation as HR skill development. The 'BM thinking' introduced the way of doing business including what knowledge company has currently and what additional knowledge needed for further actions to meet proposed value, which is translated the KS management.

We introduced these approaches to twenty-five technical personnels of this monitor maker and it explained the obtained data and feedback analyzed using SPSS as well as descriptive analysis. The results indicated the positive influence of mentioned methods for adapting a services-based corporate business model as a way of promoting new knowledge for service climate creation within technology-based company.

Chapter 5

Case: Servitization Paths in Successful Companies

5.1 Nike and Apple

Purpose

This case shows how manufacturing firms sharing their competencies in order to co-creating knowledge, thereby the company can transform its business from goods-based value oriented to service-based value chain perspective.

Company background

Nike, Inc. was established in 1964 under the original name of Blue Ribbon Sports. It is currently a world-leading footwear, apparel, and equipment manufacturing company generating business with the philosophy ‘to bring inspiration and innovation to

every athlete in the world' and the belief that 'if you have a body, you are an athlete' (Nike Inc., Business Overview, 2014). In 1971, it launched its own line known simply as 'Nike', with the now-famous slogan 'Just Do It'. By 1990, Nike had obtained value as a prestigious brand on the global level. The company is assured of continuous growth due to its unparalleled innovation, sustainability, and design, and it consistently satisfies consumers. Nike has following individual brands: Converse, Inc., Hurley International, Jordan, and Nike Golf. Currently, following the global trend, Nike is eager to promote its image as a service value provider rather than just a typical product provider. Therefore, the company set about creating a provider-recipient engagement platform. For example, Nike+ is marketed as the 'world's largest running club', where all users can connect with Nike to receive better service (The new Nike+ running experience, 2012). Currently, Nike is the world's largest manufacturer and supplier of sports equipment, operating in over 160 countries worldwide (Nike Inc., Business overview, 2014).

Apple, Inc. is a US-based multinational corporation founded in 1976 by Steve Jobs and Steve Wozniak that is well-known for its innovation in electronics. It mainly offers consumer electronics, computer software, and commercial servers. Apple became a high value innovation manufacturing company largely through the drive of its CEO, Steve Jobs, and its simple and customized products created customer focused value. Today, Apple is the world's second largest information technology and mobile phone manufacturer after Samsung Electronics (IDC, 2014) in terms of revenue and is continuing to increase its market worldwide. For example, it as June, 2014 it maintains 425 retail stores in fourteen countries (Apple store locations, 2014)

Analysis of the case

We analyzed this case in the view of knowledge space (KS) Management, corporate collaboration, and service oriented skill development.

A. Knowledge space management

Nike realized that a typical pair of running shoes is not able to produce the continuous value currently demanded by the market. Management therefore decided to focus on innovation and add service-based running shoes to their product line as a market solution. The idea was to make a Nike+ platform (Ramaswamy, 2008) with music, sports, and others services all bundled together. To meet this aim, Nike required additional knowledge. Management perceived that Apple Inc. would be a suitable partner because they had the knowledge and competencies Nike required to create the solution they wanted. Nike then moved forward with managing all knowledge from identified partners along with their own capital (including market experience) to enable a knowledge co-creation process in a single space.

B. Corporate collaboration

On May 23, 2006, Steve Jobs and Mike Parker, the respective CEOs of Apple Inc. and Nike Inc., announced ‘Nike+iPod’, the collaboration between their two organizations aimed at launching innovative products with the campaign slogan ‘Tune your run’.

According to Apple, they had decided to work with Nike in order to promote music and sport to a new level of performance. From the point of view of Nike,

‘Nike+iPod’ resulted from a partnership being formed between two global brands that had a mutual passion: specifically, the creation of products as service value enabling users to enjoy new experiences full of innovation and design as well as effectively changing the way people perceive and do sports (Belal et al. 2013).

The main goal of the collaboration was “business innovation and value co-creation” (Ramaswamy, 2008; p. 9), including forming trust that could satisfy recipients (Ramaswamy, 2008 as well as deliver win-win benefits (Park & Kincade, 2010).

‘Nike+iPod’ connected music and physical exercise to make the NikePlus (Nike+) platform (Ramaswamy, 2008) by sharing Nike’s and Apple’s competencies. Apple shared its digital music technology, know-how, and experience while Nike provided its footwear technology, design, marketing, and skilled HR.

C. Service oriented HR skill development

The top management of Nike were well-informed about the current global market situation. They also knew that customers want more services rather than typical products. Nike therefore started working on an innovative solution to satisfy customers and provide them with continuous real-time feedback. Nike felt that, to understand what customers want in terms of value, it was most important to focus on time service oriented solution thinking skills along with a service mindset in its employees. The company proceeded to organize a talented, diverse, and inclusive team program for the continuous growth of their HR skills that addressed both service oriented and business needs.

D. Service value system

The resultant Nike+iPod system, which is essentially a ‘service value system’, is shown in Fig. 12. This system consists of an Apple wireless device that comes with a sensor and receiver. The wireless sensor communicates with the receiver and works exclusively with Nike+ shoes (i.e., Nike+iPod Sport Kit). This organism gives real-time feedback on an individual’s performance during exercise (Rodrigues, Souza, and Leitão, 2011). The Nike+ shoes co-creation platform exploits the link between running and music (Ramaswamy, 2008). Users can select their exercise from a personal training list including foot movements, rhythms, times, distances covered, and calories burned.

This innovative solution connects users through consenting membership in the iTunes and Nike+ online community (itunes.com and nikeplus.com). Members can share experiences and information on their activities individually or together with other participants from anywhere in the world.

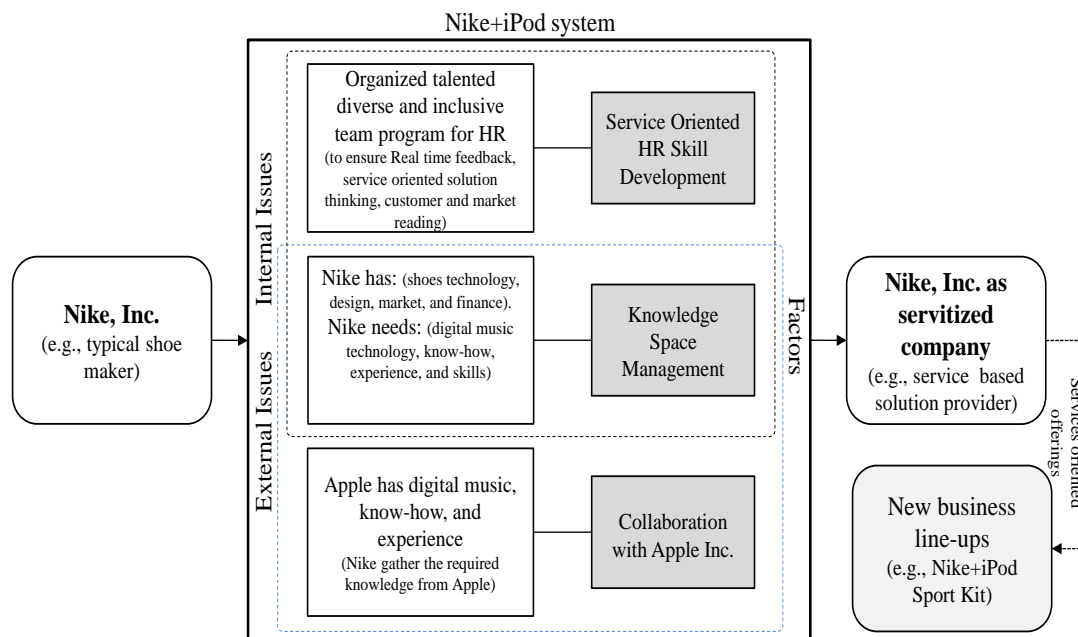


Figure 12: Co-creating value through managing Nike+iPod system

Result

Nike developed the Nike+ platform system (Ramaswamy, 2008) by practicing KS management, corporate collaboration, and service oriented HR skill development. The ultimate success of the Nike+ platform system confirmed that knowledge co-creation works and that the produced service oriented solution can create satisfying value for users (Belal, Shirahada, and Kosaka, 2012). According to Nike+shoes, the Nike+iPod Sport Kit has emerged as a novel solution that functions as a co-creative interaction and value creation platform for all participants, including individuals (runners), groups (teams of runners, running clubs), and organizations (Nike and Apple) (Prahalad and Ramaswamy, 2004). Nike started out as a typical shoe maker. Now, it has transformed itself into a total service provider and can therefore be considered a servitized firm (Belal, Shirahada, and Kosaka, 2012).

5.2 HDRIVE and Hitachi Capital

Purpose

This case confirms to co-create value with partners through not only from an economic perspective but also by providing consideration to the environment that make sure the company's business innovation.

Company background

HDRIVE is highly admired, totally new type and excellent energy-saving service business, under Hitachi, Ltd. The company principally offers its clients' production plants with such product-based equipment as high-pressure inverters and highly effectual motors with at no cost. The company is providing additional benefits to clients' by accepting its payment in monthly service fees basis.

Hitachi Capital is manufacturer-affiliated financial services company. It is committed to providing newer and higher added value through 'function-oriented service' (company information, 2014) basis on financial supports to their customer that focuses on products. It is increasing overseas service network to run into meet global basis customers' demand. The company is well trusted by customers, local community, and society as well, because of reliable relationship with stakeholders.

Analysis of the case

We analyzed this case on the basis of ‘service value system’ with consisting knowledge space (KS) management, corporate collaboration, and service oriented skill development.

A. Knowledge space management, corporate collaboration, and service oriented HR Skill for ‘service value system’

The B to B to B collaboration among high-volume manufacturing industry (e.g., steel or oil companies), service provider (HDRIVE), and financial company (Hitachi Capital), contributes their knowledge to reduce energy consumption through implementing knowledge space concept and co-creates value with business partners (Belal, Shirahada, and Kosaka, 2012). Here, the manufacturing industries are acting as a customers with the demand of energy saving solution. Such large size manufacturing industries’ factories generally contain big quantities of high-voltage motors to produce products. There is need to adjustment of motor speed over production circumstances, thereby companies can save energy during production, minimize production cost and also can perform significant role in CO₂ emission.

To meet such demand, HDRIVE wish to offer ‘inverters energy saving service system’ as an appropriate solution. HDRIVE recognized that, they have the advance technology of inverter including information, network technology, and know-how, but still they need the economic and risk management capability including knowledge of managing monitoring system devices skills to create this solution.

HDRIVE made collaboration with Hitachi Capital in the aimed to allocate finance and risk management competences with its others resources. In addition, the HDRIVE improved its employees' monitoring system devices managing skills for providing high quality services including inverter's operation knowledge sharing to their customers in every steps of energy-saving service system project. The all knowledge, i.e., from the manufacturing company- experience, needs, expectation; from the HDRIVE- advance technology, know-how and monitoring system service skills; and from the Hitachi Capital- finance and risk management capability is combined and increase the capability of building 'inverters energy saving service system'. This inverters energy saving system is works as 'service value system' and can change the drive motor's operating speed both efficiently and steadily, resulting manufacturers (e.g., steel or oil companies) turn into able to save energy during production of product and also can discharge CO₂. Therefore, the developed system co-create value with customers by

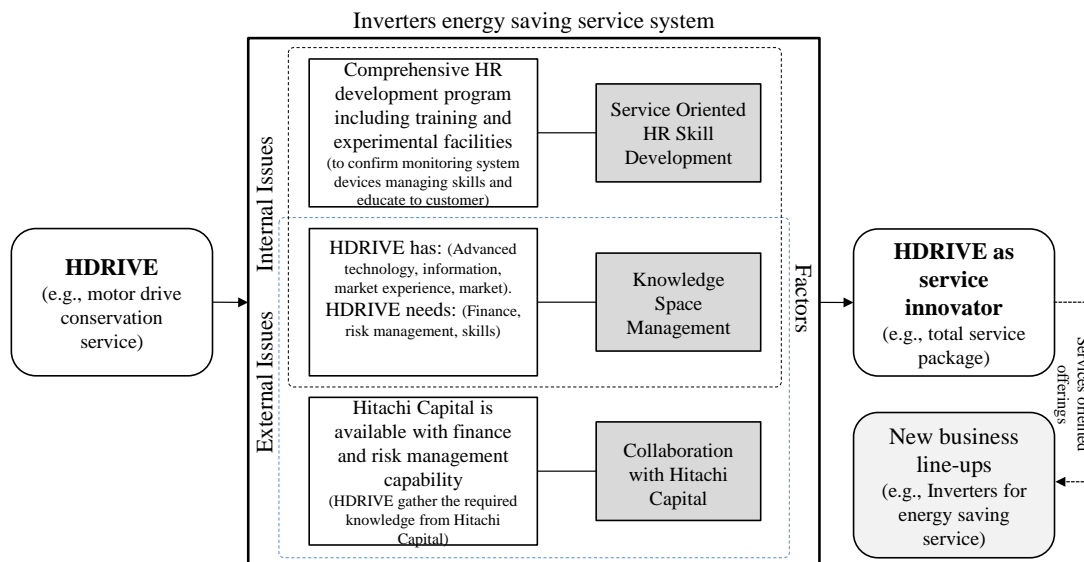


Figure 13: Value co-creation with partners through service innovation

helping in economic and environment profitability (Fig. 13).

Result

The energy saving business; HDRIVE (Kosaka and Yabutani, 2009) is successful business model for adding services in the product-based industry. This business shares profits of saved energy with inverters between recipients and service providers. There are various heavy industries (e.g., steel industry, oil industry) those use many motors, and energy consumption is an important issue affecting their costs and CO₂ emissions.

The ‘amount of saved energy *S*’ is calculated by referring to the ‘electric utility curve of motor *a*’ and the ‘ratio of saved energy *b*,’ which depends on the operation ratio *X*₁, *X*₂, and *X*₃. Saving energy makes a profit, and this profit can be shared by the customers (others company, i.e., steel or oil industry), service provider (HDRIVE), and financial company (Hitachi Capital) who make the initial investments in the inverters as shown in Fig. 14 (Belal, Shirahada, and Kosaka, 2012). The use of HDRIVE energy-

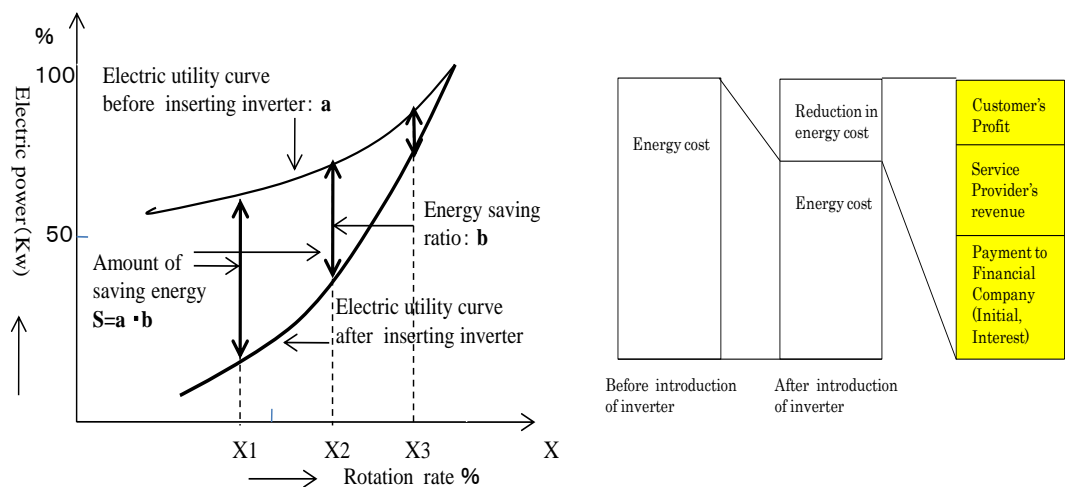


Figure 14: Energy saving and profit sharing using inverter (revised on Kosaka and Yabutani, 2009)

saving service a company can decrease their power consumption by an average of 23% (Hitachi Motor Drive Conservation Service, 2014)

By using this business model, customers need no initial investment to buy inverters, because the cost is borne by the financial company, and payments to the financial company are based on profits from the reduced energy costs (Belal et al. 2012). In this business, service providers set up inverters and monitoring systems devices for collecting operation data and calculating the profit due to energy savings, as shown in Fig. 15.

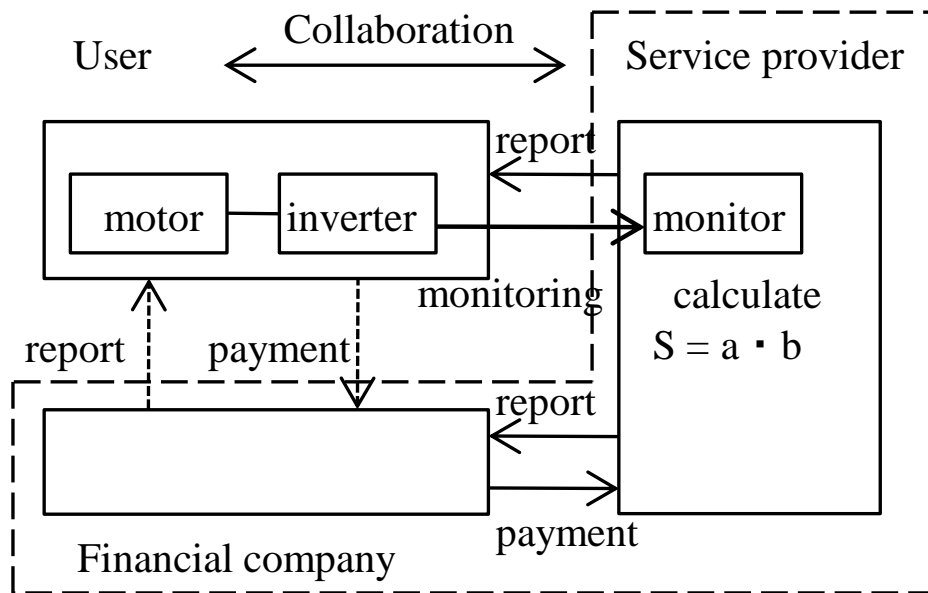


Figure 15: Inverters energy saving service operation system (revised on Kosaka and Yabutani, 2009)

5.3 Uniqlo and Toray

Purpose

This case articulates a successful strategic mechanism in the way of co-creating knowledge, in that way company can transform itself from product seller to service-based value provider.

Company background

Uniqlo is leading clothing retail chain in both sales and profits in Japan. It offered casual clothing to customers. High quality, well-made, affordable and fashionable clothing offering at a low price in the market is key business target of Uniqlo that anybody can wear whenever and wherever (company mission and vision, 2014). In order to achieve this aim and acquire the highly brand-conscious consumer group, it aimed to provide additional customer service within fashion clothing. As of August 2006, Uniqlo has 733 stores across Japan, Korea, China, UK, U.S., and Hong Kong (global store locator, 2014).

Toray Industries, Inc. is Japanese Multinational Corporation and one of Japan's largest fiber producers. The core production of Toray is fibers and textiles, plastics and chemicals, pharmaceuticals and medical products, films and resins, housing and engineering products, circuit materials used in information technology related products, carbon fiber composite materials, environment and engineering including water treatment, and progress and a host of various other products ranging from artificial kidneys and

catheters to contact lenses (company information, 2014). Nikkaku (2014), the president of Toray says in his message that ‘the vision of Toray is to contribute society through the creation of new value with innovative ideas, technologies and products’ and the mission is to deliver new value to customers through high-quality products and superior services (Belal et al. 2012). The company believes in strategic management to form long-term relationships with stake holders. At present, Toray generates business throughout Asia, Europe, and North and South America and plays a significant role in the world economy (Uniqlo global store locator, 2014)

Case analysis

Create a ‘vertical integration system’ through comprising of knowledge space (KS) management, HR service skills, and strategic partnership for business innovation.

A. Knowledge space management

In 2003, Uniqlo first introduced ‘Heat-Tech’ clothing. Though it made a positive image as a new value innovator for customers, but it had only a limited introduction in that time. Uniqlo realized that, the ‘Heat-Tech’ covered a reasonable path of business rationality, derived from the management’s evolutionary perspective on product development (Ziman, 2000, Iansiti, 1995). More development with more service as customized one of this product has good demand in market. Therefore, the company decided to lead new generation ‘Heat-Tech’ with concepts of healthy beauty, ecology, function and comfort, and innovation.

However, to confirm this new project, uniqlo recognized that, there is need to raw material development (i.e., advanced materials and technology for heat-retaining, help to retain the skin's moisture, quick-drying, and antimicrobial, with elasticity and superior thinness [Fast Retailing Co., Ltd. UNIQLO, 2009]). Uniqlo belongs with 'Heat-Tech' design technology, experience, and market. The additional service skill namely distribution service and customers' connectivity for 'Heat-Tech' global-promotion, local factories workers' fabric and sewing training to improve their manufacturing technologies are also required. Uniqlo noticed that, the necessary advanced materials (e.g., lacto-fiber, hollow spinning thread, micro acrylic, milk-protein) and technology (e.g., Stretch materials, high level processing technology offers antibacterial feature) (TORAY×UNIQLO strategic cooperation products - stage 2, 2007; Belal, Shirahada, and Kosaka, 2013) are available in Toray. Therefore, the company took steps for gathering those resources and competencies by cooperation with excellent Japanese textile suppliers Toray and develops skill to manage the intended project successfully.

B. Uniqlo-Toray corporate collaboration

In 2006 (June), Toray and Uniqlo made their strategic partnership and declared their intention to work together closely and enthusiastically on new value design, product development and planning (Belal, Shirahada, and Kosaka, 2012). In this partnership the both companies are works in various areas mutually including the production systems, global operations, and promotion of personnel exchange (TORAY×UNIQLO strategic cooperation products - stage 2, 2007). Toray shared its advanced materials (e.g., lacto-fiber, hollow fiber thread, Micro acrylic, and Milk-protein), technology (e.g., antibacterial

feature, and Stretch materials), and know-how for technology development with Uniqlo's design technology, market, experience, and human resource. Then, the all competencies of both corporations are integrated together, thereby increased company's performing capability to create new knowledge. This new knowledge influenced to produce a more complete and innovating service-based value with clothing in market to enhance customers' lifestyles.

C. Services oriented HR skill development

In the project of offering new generation 'Heat-Tech' clothing, management trained up their every departmental employees aimed to provide more flexible and customized service-based value to their customers. For example, corporations jointly developed local factories workers' by fabric and sewing training to produce quality product including development of marketing and sales staff in product planning and apply the best way to promote Heat-Tech products (Fast Retailing Co., Ltd. UNIQLO, 2009). Companies mutually worked on creating a new unique distribution structure for continuous connection with customers as well (Toray Industries, Inc., 2006). In addition, the management improved the experienced store managers and conducted a personnel policy to promote young talented employees rapidly regarding innovative services. For world wide operation the company practiced 'global one' management system in terms of Heat-Tech promotion as well (Fast Retailing Co., Ltd. UNIQLO, 2009).

D. Service value system

The combined practices and interactions of KS management, strategic partnership between Toray and Uniqlo, and skill development based on service centered view have led to the formation of ‘vertical integration system’ (Fast Retailing Co., Ltd. UNIQLO, 2009) that confirmed “UNQLO Shift” (Choi, 2011, p. 13) in terms of knowledge co-creation process. The knowledge co-creation process generated new knowledge to processes of service development, planning, production and sales for innovated ‘Heat-Tech’ clothing. This innovative product and service met customer demands for better clothes and contributed to enrich consumers’ lives. The ‘vertical integration system’ performed here as ‘service value system’, as shown in Fig. 16.

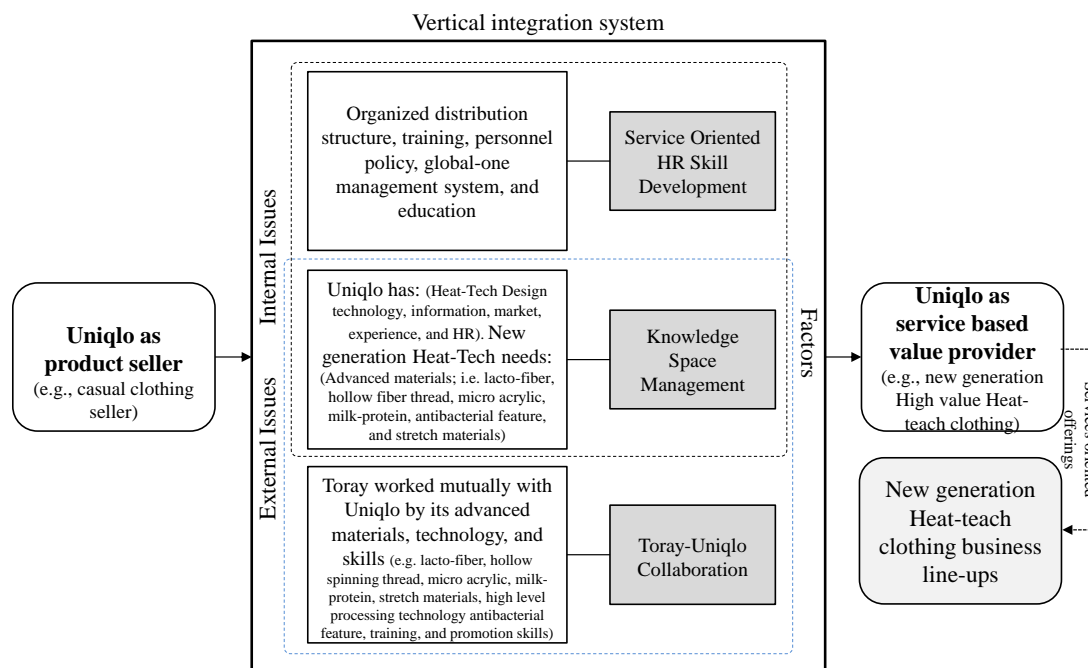


Figure 16: Uniqlo’s business innovation through knowledge focused services

Result

The ‘vertical integration system’ that is characterized as ‘service value system’, manufactured the new generation ‘Heat-Tech’ clothing as proposing a unique value for market. This system unifies all stages from material selection through the final products sale, and then it looks to develop a new, groundbreaking material as well.

However, the new generation ‘Heat-Tech’ clothing promised to deliver heat generation, heat retention, soft texture, odor control, stretchable comfort, anti-static, and nondeforming properties. The fabric is woven from a specially designed hollow fiber thread that traps pockets of warm air, insulating the body in the same way a heavier fiber would but without the bulk. Milk proteins containing natural amino acids are added to the fibers to create a soft, smooth feel.

‘Heat-Tech fabric’ also includes a mix of rayon, a man-made fiber created from cellulose, to turn the body’s perspiration into heat. Therefore, ‘Heat-Tech’ clothing delivers an excellent, low priced, relaxed to combine casual basics and offers added value to customers (Fast Retailing Co., Ltd. UNIQLO, 2009) rather than a product only, signifying that Uniqlo-Toray is a value provider (Belal et al. 2012).

5.4 PetSmart, Inc.

In 1986, Jim and Janice Dougherty founded the Pacific Coast Distributing, Inc. for offering pet food service by PetFood Warehouse store in Arizona. The company committed to help save lives by working with local animal welfare groups in 1988. The company understood the significance of service concept on its business in the year of 1989. Therefore, Pacific Coast Distributing Inc. has changed its business philosophy by offering service (e.g., grooming salon for pets) and also changed firm's name as PetSmart Inc.,. By ensuing to add service, PetSmart expanded its business and made a brand image that meant low prices and variability (Brown, Gustafsson, and Witell, 2011). In addition, the company established PetSmart Charities, Inc. in the aim of save the lives of homeless pets in 1994.

However, though the company has good brand image in market, nonetheless in 1997, PetSmart's stock price dropped from 23 dollars to 6 dollars per share (Brown, Gustafsson, and Witell, 2011). Then in 1998, company changed its leadership by appointed to Phil Francis as CEO. Phil Francis recognized that, the transformation of PetSmart from only pet food supplier to full service offering was right perception, but some problems i.e., poor understanding about the range of service offerings and skills, marketing plan, understanding customer, and collaborations capability with partners was available. Therefore, the company started to revise its thinking. For example, from 2000, the company offered total lifetime care for every pet, every parent in every time by offering superior products, grooming, training, medical care, and PETsHOTEL as pet lodging service. To implement those mentioned services successfully, the company

reformed their marketing plan, pricing, leadership strategy, and develop HR skills from top to bottom line (Company History, 2014; Brown, Gustafsson, and Witell, 2011). Additionally, PetSmart also made partnership with GNC and Martha Stewart to extend its business lines-up by launching exclusive brands, i.e., GNC Pets TM and Martha Stewart Pets TM (Company History, 2014). Thereby, the PetSmart Inc. turned into success in their business and gained more revenue that made it a steady company.

PetSmart's story certified that, only adding services with company's core offerings is not guarantee of successful servitized company. It required a service oriented HR skills, constructive marketing plan, excellent leadership strategy, and organizational relationships.

5.5 Summary

Table 8 Summary of case studies

<i>Cases</i>		<i>Key factors for service value system</i>			<i>System</i>
No.	Name of Cases	KS Management	Service oriented HR skill development	Corporate collaboration	Name of System
1	Nike and Apple	Digital music technology, know-how, and experience for Nike+ platform	Talented, diverse and inclusive skill development team program	Apple Inc.	Nike+ platform system
2	HDRIVE and Hitachi Capital	Finance, risk management, and skills for energy saving service	Monitoring system devices skills	Hitachi Capital	Inverters energy saving service system
3	Uniqlo and Toray	Heat-Tech clothing advanced materials, technology, and skills	Distribution structure, fabric and sewing training, personnel policy, and global one management system	Toray Industries Inc.	Vertical integration system
4	PetSmart, Inc.	----- (Note: Service knowledge, skill development, strategic change management)	----- (Note: Service leadership, and develop HR skills from top to bottom line)	----- (Note: GNC and Martha Stewart)	-----

We analyzed the four case studies as in paths of servitized companies as shown in Table 8. The analysis shows, regarding first three cases; in their process of achieving servitization opportunity, they practiced successfully the key factors namely; KS management, service oriented HR skill development, and corporate collaboration to overcome their organizational internal and external issues. By this means, they created a new system that worked as ‘service value system’ and confirmed to create innovative knowledge. The innovative knowledge guaranteed for customers desired service. Thereby, they transformed their business from product-based oriented to service-based value chain perspective and expanded their business lines as well. Currently the mentioned three companies are signified as well-known servitized corporations. According to the case of

PetSmart Inc., when the company did not have practiced about recognizing knowledge gap, service oriented HR skill development, and business collaboration that's time it was not success in its business as service-based value provider. Nevertheless, after realizing and meeting the mentioned issues, the company came to success in pet solutions business and signified itself as servitized firm.

Chapter 6

Conclusion

6.1 Solutions for Research Questions

Subsidiary research questions (SRQ):

SRQ 1: What are the key factors for managing servitization?

Based on the previous discussions about the concept of servitization we redefined, the servitization as a transition process of an organization through adding service concepts into product-based business.

Our research showed that, for managing the transition process of manufacturing company from G-D logic business viewpoint to S-D logic business view, there are need to overcome the organizational internal and external issues. The practice of three key factors namely; (i) knowledge space management, (ii) service oriented HR skill development, and (iii) corporate collaboration centered on service value system are responsible to overcome from those mentioned issues. Thereby, a manufacturing

company can transform itself as servitized firm.

(i) Knowledge space management

In S-D logic view, the value is determined by customer (Vargo and Lusch, 2004) and service is driving force for value creation. To understand customer requirements and produce value through service innovation according to these requirements is necessity. Knowledge co-creation process for ensuring new knowledge is a core tool to lead service innovation. Hence, the company needs to recognize what or where the company's organizational modification is required for it. In addition, company also needs to indentify that, what knowledge it has now and what additional knowledge is essential for creating customer focused value. Managing knowledge through integration of resources with identifying partners including customers makes opportunities to co-create knowledge for service-based value creation. All resources from participating partners and actions can develop a knowledge space (KS) as a set of knowledge co-creation process. The competency of KS is core step for new knowledge creation to produce required customer focused service that creates value. With KS management, the limitations posed by where a company currently stands are considered. This includes what strengths a company has and what is currently lacking. Therefore, KS management in the view of knowledge management is one of key factors for servitization management.

(ii) Service oriented HR skill development

The analysis showed that, in the aim of making service-based value for customer, it is necessary to understand about customers and their required solution. A company that

wishes to deliver service-based value, needs to have human resources (HR) who have service oriented mindset. The product-based company generally is with technical and business design basis skills. Therefore, service oriented HR skill development is urgent.

This study showed significant modes to promote service skills in HR with their existing competency. The first one is to understand about the value of G-D logic which is determined by products on the basis of value-in-exchange and also to understand about the value of S-D logic, which is determined by customer on the basis of value-in-use (Vargo and Lusch, 2004). The second one is about service oriented business model intellectual. The mentioned first and second ways help to technical personnel towards rethink about service idea generation and the way of doing business. In addition, in the action research part of our study, we used service innovation chart (SIC) and business model (BM) thinking generation framework for improving HR's service oriented skill. The feedback showed the positive consequence to understand of service knowledge including the difference between G-D logic and S-D logic, service idea generation thinking skill, and its way of action to deliver value in practical field.

(iii) Corporate collaboration centered on service value system

A company should build a 'service value system' for managing knowledge co-creation to deliver service-based value for customer. This system ensures resource availability, accessibility, and functions for new knowledge creation. However, a company may not belong with all necessary resources. Building a 'service value system' by alone is difficult in general. Company needs to think about integration of resources. The collaboration with other suitable partners is core mechanism to resource integration,

in which the collaborative partners decide on the basis of their context.

According to successful corporate collaboration, all resources as well as competencies from working partners are gathered together. In that way, it increased the influence of accessibility, make co-relationship among stakeholders, and build a 'service value system'. This study recognized from case studies that, by corporate collaboration a company can co-create knowledge and produce a required services as market solution. Thus, corporate collaboration centered on service value system is also one of key factors to manage successful servitization.

SRQ 2: What is the relationship among key factors and servitization management?

The research indicated that, there are three key factors; knowledge space (KS) management, service oriented HR skill development, and corporate collaboration centered on service value system to manage servitization. Those three key factors have a inter-core-relationship in building 'service value system'. In the transition process of an organization from G-D logic vision to S-D logic one, the 'service value system' performed in understanding, managing, processing, co-creating, and delivering knowledge for customer centric service.

The management of KS executed a fundamental role in the 'service value system' building route. Because the KS is functions to achieve a set of knowledge co-creation process with contribution of performing partners. In the aim of the process of knowledge co-creation in the way to new knowledge making, the KS management recognized for company that, what service they are going to be produce for customers as their requisite

value. To meet this service, what or where the company's organization needed to alter. In addition, what resources it needed and from where the organization can fill-up this required resources.

On the basis of the KS management analysis, the HR skill development is core tool to service-based value creation for customers. Without having a service oriented skill, the HR neither diagnose the customer's required value nor to generate do service ideas aimed to provide the true feedback to the organization or recipients as well. Therefore, company have a duty to take essential plan (e.g. business vision sharing, technological advancement method, specialist networks etc.) for personnels' service oriented business skill development within technical skills. By which employees can then contribute their service ideas, service solution thinking, understanding of the market, and gather customer experience for value co-creation. For that reason, realizing KS management and develop service oriented skill HR is mandatory in terms of knowledge co-creation process as path of building 'service value system'.

In addition, after recognizing about resources gap by KS management analysis, the question is arise that, how to be arrange this resources. The analysis demonstrated that, collaborating with other stakeholders including customers is effective to integrate resources. In this method, all stakeholders shared their resources with the organization (provider) and utilize it in the process of knowledge co-creation according to the requirements that already have identified by the provider. The simultaneous activities of KS management, service oriented HR skill, and corporate collaboration that form the 'service value system' are performed to overcome internal and external organizational issues that may be hampering the knowledge co-creation process. In this way, new

knowledge is generated that can be used to design and develop services as the customers' desired solution. As a result, it is clear that, the mentioned three key factors are inter-dependent when it comes to build 'service value system' in the aim of service-based value creation for customers.

SRQ 3: How does servitization management model affect to create knowledge focused services for customer?

To manage the way of creating knowledge focused service-based value for business innovation we proposed a knowledge focused servitization management model. It developed in response to the current lack of a strategic corporate approach in achieving the opportunity of servitization. This model is based on the idea of knowledge space (KS) management, service oriented HR skill development, and corporate collaboration centered on service value system.

In this model, we pointed out that, the KS management, service oriented HR skill development, and corporate collaboration are inter-related and the every portion has a significance contributions to overcome organizational internal and external issues for transforming a manufacturing company as servitized one.

The KS covers a knowledge co-creation process in the goal of new knowledge creation that leads to service innovation. However, for dealing a KS, the corporation needs to deal about what, where, why or how the manufacturing company should adjustment. It also includes in category of resources, detect, and arrangement of collaborative companies as well as partners. These drills are signified in this model as KS management factor. To practice KS management successfully, the manufacturing company come to

recognize about customer desires, current knowledge and strengths of company, and also about company's knowledge gap and limitations. On the basis of the KS management, company should improve its HR skill in service oriented viewpoint. Management then takes steps to develop service oriented HR skills. Additionally, according to KS management analysis, along with the service oriented HR skills development, organizing the corporate collaboration is also essential. This corporate collaboration method due to resources integration for minimizing the knowledge gap between companies in different industries or between different sections and departments within the same company. Therefore, company makes a corporate collaboration with identified or suitable partners and arranges required resources to generate knowledge coc-creation process. The stated practices communally formed the 'service value system' that works to overcome internal and external organizational issues and generate knowledge co-creation process. In this manner, new knowledge is created and using it to develop the customer centric service-based value.

In addition, the 'service value system' provides opportunities to service provider for making continuous connection with participating partners by providing fun and prospects for satisfying self-determination. Thereby, company identifies the realistic consumer requirements and it has the potential to create unique sets of service for stakeholders as value that finally can yield new business.

Major research question (MRQ):

How should manufacturing companies do to transform to service oriented company?

A typical product-based company is designed with the resources, competencies, and knowledge to manufacture quality goods and offers maintenance services to care for their products. To keep up with current global business tendencies and acquire more market share via business innovation, most manufacturers are currently moving toward a service oriented value offering viewpoint. With this aspiration, there is the need for an effective mechanism that enables manufacturing companies to create new knowledge. Using our proposed servitization management model assists in the knowledge co-creation process amongst stakeholders and enables them to generate new knowledge for providing customers with value in the form of service.

In this work, we proposed a knowledge focused servitization management model to help guide manufacturing companies as they build a ‘service value system’ through KS management, service oriented HR skill development, and corporate collaboration.

The KS management considered that, what is company’s current situation. This includes what strong points or assets a company has and what is currently needing for touching the company’s redesigning vision. Based on the KS detonation, management recognized that, in aimed to generate knowledge co-creation process in the way to new knowledge creation for service as consumer value, service oriented skills and additional resources are needed with existing strengths of the manufacturer. Therefore, with the concern of service view the HR skill development outlines is created and employees can

then contribute their service ideas, service oriented solution thinking, market and customer experience with the service provider. In addition, along with the KS management and service oriented HR skills development, organizing of corporate collaboration turn into essential due to resources integration for minimizing knowledge gap from companies in different industries or inter-organizational different subdivisions.

The mutual activities of KS management, service oriented HR skill, and corporate collaboration that construct the 'service value system' is performed to overcome organizational internal and external issues in the way of knowledge co-creation process. In this manner, generate a new knowledge that apply to design and develop service as solution for meeting customers requirements. The state-of-the-art of service in general, expands company's business lines and appeal to form a new marketplaces. Thus, by dint of practicing the knowledge focused servitization management model a manufacturing companies can manage their way of creating knowledge focused service for transforming itself as service oriented view and innovate its business line-ups.

6.2 Academic Implications

It has been revealed that, achieving servitization is necessary for organizational transformation from G-D logic view to S-D logic view in the era of global business dynamics. A verified servitization management model as path of familiarize this opportunity needs to introduce. Our study showed the methodology to change an organizational business view from G-D logic to S-D logic. Thereby, a manufacturer can attain capability of producing continuous value via knowledge focused services that makes sure of consumer desire and corporate success.

This study will contribute to wide-ranging discussion on the key concepts of service research. Through this work, we hope to encourage service, knowledge, marketing management, and HRM academics to engage in global business environmental change research and activities.

The notion of service research realized in both business and academia from several years ago. It is indicated that, in service science study seeks to how complex patterns of resources create value within firm and across the firm (Spohrer et al., 2008). The servitization is telling about firm's value producing movement process from product-based view to service-based view. Although there is some of general discussion and model about servitization, but now, there is remarkably need for new ways of creating service-based value with firm's core product in the sense of multidisciplinary field (i.e., knowledge management, HR management) rather than interdisciplinary service science study intended to cultivate service innovation (Davis and Berdrow, 2008).

Problems also continue in servitization research, principally in the context of

service-based value through knowledge co-creation process across service systems. The servitization management model for knowledge focused service presented here fundamentally shifts the organizational value creation focused from product offering based on G-D logic to S-D logic. It suggests that a ‘service value system’ is a result of the set of knowledge co-creation process. It is accessible for all participants, identify, and integrate resources to create value for stakeholders. The influence of KS management, service oriented HR skill development, and corporate collaboration centered on service value system is the core source to generate continuous knowledge co-creation process.

We also believe this study will help open a debate on the issues faced by organizations undergoing servitization. For example, how well does the servitization management model work for knowledge-based organizations? Is it possible for a customer-focused firm to become servitized by using the servitization management model? Does this model fit firms of all sizes? What is the impact of servitization on consumer and social well-being? What other disciplines can be involved in the servitization process? We hope that scholars will build a body of their own theories related to this theme and address these issues with their own contributions.

6.3 Practical Implications

The new strategic agenda of servitization in manufacturing industries for service-based value offerings is a bigger challenge. Our research plays a significant role in overcoming challenges in the practical field. From this study, management can recognize that building a ‘service value system’ is needed in order to manage an effective servitization strategy. Specifically, managers can clarify the various issues inherent in a ‘service value system’ by utilizing knowledge space (KS) management, service oriented HR skill development, and corporate collaboration. This will enable management to more effectively prepare their organizations by managing the necessary steps for servitization.

This research provides a broad and detailed discussion on how corporate management should manage knowledge space, develop service skill in their personnel, and orchestrate beneficial collaboration with partners to cultivate a ‘service value system’. Putting such a system into practice enables a company to minimize its business risk, as all relevant parties are involved and interact with one another.

In order to determine how well the proposed model works, we performed action research with a Japanese monitor maker by applying the approaches of service innovation chart (SIC) and business model (BM) thinking. We found that the proposed approaches are effective to develop service oriented skills in technical personnel and to recognize organizational knowledge and knowledge gap with the aim of transforming a technology-based company into one with a service climate. Consequently, managers may apply those mentioned two approaches for service climate creation in the journey of their company’s servitization process.

This research provides a complete actualities for practitioners to adapt and manage a servitization opportunity through practicing proposed knowledge focused servitization management model. In this way, company can increase opportunities for new business line-ups.

6.4 Future Research and Limitations

The prime limitation is that, this research is based on a single action research. Due to the limited sample size, we used descriptive statistics to analyze the effects of action research that was a first step for generalization of practical servitization. We need more samples to test our approach for generalization of the model by focusing more about human motivation, group diversity, and collaboration belief for promoting servitization.

This research presented four case studies, but these are designed by secondary data of sources. It would be more effective if design with primary data of companies including interviews and feedback.

This study focused only a product-based organization which makes generalization to other type of industries (i.e., knowledge-based and customer-based) difficult. Additionally, a discussion about the operation of proposed model is limited.

The future research in this area would benefit from multiple action research approach in a next step. In addition, the future research thinking relates to personal and collective well-being issues of consumers, citizens, and the entire global ecosystem that we may introduce as transformative servitization research. In addition, our concept can be broadened to social innovation through Business to Business to Government to Society as shown in Appendix.

References

- Akdemir, B., Erdem, O., & Polat, S. (2010). "Characteristics of high performance organizations," *Suleyman Demirel University Journal of Faculty of Economics & Administrative Sciences*, 15(1), pp. 155-174.
- Amabile, T. M. (1996). "Creativity and innovation in organizations," 5, pp. 1-15, (9-396-239), Boston: Harvard Business School.
- Apple Store locations, Retrieved on 27Jan, 2014, <http://www.apple.com/retail/storelist/>
- Apple press info, Retrieved in NEW YORK - May 23rd, 2006, <https://www.apple.com/uk/pr/library/2006/05/23Nike-and-Apple-Team-Up-to-Launch-Nike-iPod.html>
- About us, message from the president, Retrieved on 2014, <http://www.toray.com/aboutus/message.html>
- Baines, T. S., Lightfoot, H. W., Evans, S., Neely, A., Greenough, R., Peppard, J., & Wilson, H., (2007). "State-of-the-art in product-service systems," *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, 221(10), pp. 1543-1552. Doi: 10.1243/09544054JEM858.
- Baines, T. S., Lightfoot, H., Benedettini, O., Whitney, D., & Kay, J. M., (2010). "The adoption of servitization strategies by UK-based manufacturers," *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, 224(5), pp. 815-829.
- Baines, T. S., Lightfoot, H. W., Benedettini, O., & Kay, J. M., (2009). "The servitization of manufacturing: a review of literature and reflection on future challenges," *Journal of Manufacturing Technology Management*, 20(5), pp. 547-567.
- Baines, T., Lightfoot, H., Smart, P., & Fletcher, S., (2013). "Servitization of manufacture: Exploring the deployment and skills of people critical to the delivery of advanced

- services,” *Journal of Manufacturing Technology Management*, 24(4), pp. 637-646.
- Baines, T., (2013, November). “Aston Servitization,” 9(16), from www.aston-servitization.com/.../38_the-manufacturer-..
- Brown, A., (2009). “Higher skills development at work: A Commentary by the Teaching and Learning Research Programme,” London: ESRC, TLRP.
- Belal, H.M., Shirahada, K., & Kosaka, M., (2012). “Knowledge Space Concept and Its Application for Servitizing Manufacturing Industry,” *Journal of Service Science and Management*, 5(2), pp. 187-195. doi: 10.4236/jssm.2012.52023.
- Belal, H. M., Shirahada, K., & Kosaka, M., (2013, July). “An analysis of infrastructure innovation in corporate collaboration,” In *Technology Management in the IT-Driven Services (PICMET)*, 2013 *Proceedings of PICMET'13*: IEEE, pp. 227-234.
- Belal, H. M., Shirahada, K., & Kosaka, M., (2014). “Infrastructure Innovation to Attain Service Value Sustainability: Viewpoint of Resource Management,” *International Journal of Service Science, Management, Engineering, and Technology (IJSSMET)*, 5(2), pp. 19-35.
- Belal, H. M., Shirahada, K., & Kosaka, M., (2014). “An Analysis of Knowledge Space Concept and Recursive Approach for Servitizing in Manufacturing Industries,” In M. Kosaka, & K. Shirahada, (Eds.) *Progressive Trends in Knowledge and System-Based Science for Service Innovation*, Hershey, PA: Business Science Reference, pp. 273-291, doi:10.4018/978-1-4666-4663-6.ch015.
- Belal, H. M., Yoneda, T., Takahashi, N., Hirata, N., Amemiya, K., Yamamoto, M., ... & Shirahada, K., (2014, July). “Approach for organizational service climate creation: Action research in a Japanese monitor maker,” In *Management of Engineering & Technology (PICMET)*, 2014 Portland International Conference on IEEE, pp. 2449-2454.
- Brown, J. S., & Duguid, P., (1998). “Organizing knowledge,” *California management review*, 40(3), pp. 90-111.

- Bratianu, C., & Orzea, I., (2010). "Tacit knowledge sharing in organizational knowledge dynamics," In *Proceedings of the 2nd European Conference on Intellectual Capital*, Academic Conferences Limited, pp. 107-1114.
- Brown, S.W., Gustafsson, A., & Witell, L. (2011, January). "Service Logic: Transformative Product-Focused Business," *Center for service leadership*, W.P.CAREY School of Business, Arizona State University.
- Bratianu, C., & Orzea, I. (2010). "Organizational knowledge creation," *Management, Marketing challenges for knowledge society*, 5(3), pp. 41-62.
- Bititci, U. S., Martinez, V., Albores, P., & Mendibil, K., (2003). "Creating and sustaining competitive advantage in collaborative systems: the what and the how," *Production Planning & Control*, 14(5), pp. 410-425.
- Choi, E. K., (2011). "Paradigm innovation through strategic collaboration between TOREY & UNIQLO: Evolution of a new fast fashion business model, *IIR Working Paper*, Tokyo: Hitotshubashi University.
- Company History, Retrieved on 2014, <http://www.eizo.com/global/company/history/>
- Chesbrough, H., (2012). "Why companies should have open business models," *MIT Sloan management review*, 48(2).
- Corrêa, H. L., Ellram, L. M., Scavarda, A. J., & Cooper, M. C., (2007). "An operations management view of the services and goods offering mix," *International Journal of Operations & Production Management*, 27(5), pp. 444–463. doi:10.1108/01443570710742357
- Company History, Retrieved on 2010, <http://phx.corporate-ir.net/phoenix.zhtml?c=93506&p=irol-timeline>
- Camuti, P. A., (2006). "Engineering the future: Staying competitive in the global economy," *Online Journal for global engineering education*, 1(1), pp. 2. <http://digitalcommons.uri.edu/oigee> [5 July 2009].
- Constantin, J. A., & Lusch, R. F., (1994, August). "Understanding resource management: How to deploy your people, products, and processes for maximum productivity," Oxford, OH: Planning Forum.

- Conner, K. R., & Prahalad, C. K., (1996). "A resource-based theory of the firm: Knowledge versus opportunism," *Organization science*, 7(5), pp. 477-501.
- Coleman, D., (2010). "Strategies for successful enterprise collaboration: Balancing people, process and technology," *Akamai Technologies*, Cambridge, US.
- Davis, M. M., & Berdrow, I., (2008). "Service science: Catalyst for change in business school curricula," *IBM Systems Journal*, 47(1), pp. 29-39.
- Doignon, J. P., & Falmagne, J. C., (1985). "Spaces for the assessment of knowledge," *International Journal of Man-Machine Studies*, 23(2), pp. 175-196.
- Demarest, M., (1997). "Understanding knowledge management," *Long range planning*, 30(3), pp. 374-384.
- Darr, E. D., Argote, L., & Eppe, D., (1995). "The acquisition, transfer, and depreciation of knowledge in service organizations: Productivity in franchises," *Management science*, 41(11), pp. 1750-1762.
- Daim, T.U., Jetter, A., & Demirkan, H., (2010). "Perspective: Technology Management in the Service Sector," *International Journal of Services Technology and Management*, 13(1-2), pp. 3-16. doi:10.1504/IJSTM.2010.029668.
- Evanschitzky, H., Ahlert, D., Blaich, G., & Kenning, P., (2007). "Knowledge management in knowledge-intensive service networks: a strategic management approach," *Management Decision*, 45(2), pp. 265-283.
- Elche, D. M., & González, A., (2008). "Influence of Innovation on Performance: Analysis of Spanish Service Firms," *The Service Industries Journal*, 28 (10), pp.1483-1499, doi:10.1080/02642060802250294.
- Fenn, M., Murphy, M. A., Martin, J., & Goasguen, S., (2008, May). "An evaluation of KVM for use in cloud computing," *In Proceedings 2nd International Conference on the Virtual Computing Initiative*, RTP, NC, USA.
- Filemon, A., & Uriarte, J., (2008). "Introduction to Knowledge Management," *ASEAN Foundation, Jakarta, Indonesia*. Available on www.aseanfoundation.org
- Fast Retailing Co., Ltd. UNIQLO, Retrieved on 2009/12/03, from <http://www.porterprize.org/english/pastwinner/2009/12/03114807.html>

- Grant, R. M., & Baden-Fuller, C., (2004). "A Knowledge Accessing Theory of Strategic Alliances," *Journal of Management Studies*, 41(1), pp. 61–84.
doi: 10.1111/j.1467-6486.2004.00421.x
- Gebauer, H., Fleisch, E., & Friedli, T., (2005). "Overcoming the service paradox in manufacturing companies," *European Management Journal*, 23(1), pp. 14-26.
- GE healthcare mammography, Retrieved on 2014, from
<http://www3.gehealthcare.com/en/products/categories/mammography>
- GE Healthcare Life Science, Retrieved in 2014, from
<http://www.gelifesciences.com/webapp/wcs/stores/servlet/Home/en/GELifeSciences-JP/>
- Grant, R. M., (1996). "Toward a Knowledge-Based Theory of the firm," *Strategic management journal*, 17(S2), pp. 109-122.
- Huxham, C. (Ed.). (1996). "*Creating collaborative advantage*," Sage.
- Hitachi Capital, company information, Retrieved on 2014, from
<http://www.hitachi-capital.co.jp/hcc/english/company/president.html>
- Hitachi Motor Drive Conservation Service, Retrieved on 2014, from
<http://www.hitachi.com/environment/showcase/solution/industrial/hdrive.html>
- Iansiti, M., (1995). "Technology Integration: Managing Technological Evolution in a Complex Environment," *Research Policy* 24(4), pp.521-542.
- International Data Corporation (IDC), Retrieved on 27Jan, 2014, from
<http://www.idc.com/getdoc.jsp?containerId=prUS24645514>
- Janthong, N., & Butdee, S., (2010). "Design Methodology for Industrial Product toward Service Manufacturing," *Asian International Journal of Science and Technology in Production and Manufacturing Engineering*, 3, pp. 1-13.
- Kainth, J., & Verma, H. V., (2013). "Perceived Value and Brand Loyalty in Fine Dining Service," *International Journal of Service Science, Management, Engineering, and Technology (IJSSMET)*, 4(1), pp. 1-12.
- Kosaka, M., & Yabutani, T., (2009). "A Consideration on Service Business Model for Saving Energy and Reduction of CO2 Emission Using Inverters," *IEEEJ*

- Transactions on Electronics, Information and Systems, Information and System*, 129(4), pp. 755-761. doi:10.1541/ieejieiss.129.755.
- Kosaka, M., (2012). A Service Value Creation Model and the Role of Ethnography. *An Ethnograph Global Landscapes*, pp. 109-130. www.intechopen.com
- Kosaka, M., (2010, June). A curriculum of MOS (Management of Service) course based on knowledge science and information science. In *Service Systems and Service Management (ICSSSM)*, 7th International Conference on IEEE, pp. 1-6.
- Lovelock, C., & Wirtz, J., (2004). "Service Marketing. People, Technology, Strategy, 5/e," Pearson Prentice Hall, Upper Saddle River.
- Lusch, R. F., & Vargo, S. L., (2008). "The service-dominant mindse," In *Service science, management and engineering education for the 21st century*, Springer US, pp. 89-96.
- Mills, J., Neaga, E., Parry, G., & Crute, V., (2008, May). "Toward a framework to assist servitization strategy implementation," In *Proceedings of the POMS 19th annual conference*. Production and operation management society.
- Mont, O., (2001), "Introducing and developing a PSS in Sweden", *IIIEE*, Lund University, pp. 6.
- Martinez, V., & Bastl, M., (2010) "Challenges in Transforming Manufacturing Organisations into Product-Service Providers," *Journal of Manufacturing Technology Management*, 21(4), pp. 449-469. doi:10.1108/17410381011046571.
- Manzini, E., and Vezzoli, C. A., (2003), "Strategic design approach to develop sustainable product service systems: examples taken from the 'environmentally friendly innovation,'" *Journal of Cleaner Production*, 11(8), pp. 851-857.
- Martinez, V., Bastl, M., Kingston, J., & Evans, S., (2010). "Challenges in transforming manufacturing organisations into product-service providers," *Journal of Manufacturing Technology Management*, 21(4), pp. 449-469.
- Magnusson, J., & Stratton, S. T., (2000). "How do companies servitize?," [Online]

- Available from: http://gupea.ub.gu.se/dspace/bitstream/2077/2448/1Magnusson_2000_37.pdf (Downloaded 20 April 2009).
- Mathieu V., (2001), "Product services: from a service supporting the product to service supporting the client," *Journal of Business & Industrial Marketing*, 16(1), pp. 39-58.
- Noor, H. M., Ahmad, A. R., Ramin, A. K., & Ashikin, N., (2011). "Influencing factors towards organization participation in workforce's skills development programs organize by PSMB," *International conference on management proceeding*, pp.1308-1323.
- Nonaka, I., (1994). "A dynamic theory of organizational knowledge creation," *Organization science*, 5(1), pp. 14-37.
- Neely, A., (2007). "The Servitization of Manufacturing: An Analysis of Global Trends," *14th European Operations Management Association Conference*, Ankara, Turkey, pp. 1- 10
- Neely, A., (2008). "Ploring the Financial Consequences of the Servitization of Manufacturing," *Journal Operations Management Research*, 1(2), pp. 103-118. doi:10.1007/s12063-009-0015-5.
- Neely, A., McFarlane, D., & Visnjic, I., (2011, July). "Complex service systems identifying drivers characteristics and success factors," In *Proceedings of the 18th European Operations Management Association Conference*, Cambridge, John Benjamins.
- Nike Inc., Business Overview, Retrieved on 2014, from <http://www.nikeresponsibility.com/report/content/chapter/business-overview>
- Nonaka, I., & Takeuchi, H., (1995). "*The knowledge-creating company: How Japanese companies create the dynamics of innovation*," Oxford university press.
- Nonaka, I., Toyama, R., & Byosiore, P., (1998), "A Theory of Organizational Knowledge Creation: Understanding the Dynamic Process of Creating Knowledge," *Knowledge Creation Diffusion Utilization*, 1, pp. 491-517
- Nonaka, I., Toyama, R., Konno, N., (2000). "SECI, Ba and Leadership: A Unified

- Model of Dynamic Knowledge Creation,” *Long Range Planning*, 33(1), pp.5-34,
[http://dx.doi.org/10.1016/S0024-6301\(99\)00115-6](http://dx.doi.org/10.1016/S0024-6301(99)00115-6)
- Nonaka, I., Takeuchi, H., & Umemoto, K., (1996). “A theory of organizational knowledge creation,” *International Journal of Technology Management*, pp. 833-845.
- Oliva and R. Kallenberg, (2003) “Managing the Transition from Products to Services,” *International Journal of Service Industry Management*, 14(2), pp. 160- 172.
doi:10.1108/09564230310474138
- Ostrom, E., (1990). “Governing the commons: The evolution of institutions for collective action,” *Cambridge university press*. UK.
- Osterwalder, A., & Yves P., (2010). “Business model generation—a handbook for visionaires, game changers, and challengers,” NewYerk Wiley.
- Prahalad, C. K., & Ramaswamy, V., (2004). “Co - creation experiences: The next practice in value creation,” *Journal of interactive marketing*, 18(3), pp. 5-14.
- Prahalad, C. K., & Ramaswamy, V., (2004). “Co-creating unique value with customers,” *Strategy & Leadership*, 32(3), pp. 4-9.
- Park, H., & Kincade, D. H., (2010). “Historical Analysis of Apparel Marketer’s Strategies: Evidence from a Nike Case,” *Journal of Global Fashion Marketing*, 1(3), pp. 182-193.
- Porter, M.E., & Ketels, C.H.M., (2003). “UK Competitiveness: Moving to the Next Stage,” *Economic and Social Research Council*, Swindon.
- Parkhe, A., (1991). “Interfirm diversity, organizational learning, and longevity in global strategic alliances,” *Journal of international business studies*, pp. 579-601.
- Powar, K.S., Beltagui, A., & Riedel, J.C.K.H., (2009). “The PSO Triangle: Designing Product, Service and Organisation to Create Value,” *International Journal of Operations and Production Management*, 29 (5), pp. 468-493.
- Pieck, E., (2009, June). “Skills development strategies: A slow learning process,” Norrag conference, Gebeva, pp. 1-31.
- People and Culture, “Build and Empower the Winning Team,” Retrieved on 2014, from

<http://www.nikebiz.com/crreport/content/people-and-culture/6-2-0-human-resources.php?cat=human-resources>

- Rodrigues, F., Souza, V., & Leitão, J., (2011). "Strategic Coopetition of Global Brands: A Game Theory Approach to 'Nike + iPod Sport Kit' Co-Branding," *International Journal of Entrepreneurial Venturing*, 3(4), pp. 435-455.
- Rakesh, K., D., & Padmakumar E., (2014, October). "Information Technology enablers for servitization in manufacturing," *HCL white paper*, Retrieved on October 16, 2014, from <http://www.hcltech.com/white-papers/manufacturing/information-technology-enablers-servitization-manufacturing>
- Ren, G., & Gregory, M.J., (2007, October) "*Servitization in manufacturing companies: a conceptualization, critical review, and research agenda*," In: Frontiers in Service Conference, San Francisco, CA, US.
- Ramaswamy, V., (2008). "Co-creating value through customer's experiences: the Nike case," *Strategy & Leadership*, 36(5), pp. 9-14.
- Sheth, J. N., & Parvatiyar, A., (1992). "Towards a theory of business alliance formation," *Scandinavian International Business Review*, 1(3), pp. 71-87.
- Spohrer, J., & Maglio, P. P., (2008). "The emergence of service science: Toward systematic service innovations to accelerate co - creation of value," *Production and operations management*, 17(3), pp. 238-246.
- Shafer, S. M., Mith, H. J., and Linder, J. C., (2005). "The power of business models," *Business horizons*, 48(3), pp. 199-207.
- Sveiby, K. E., (1997). "*The new organizational wealth: Managing & measuring knowledge-based assets*," Berrett-Koehler Publishers.
- Thomson, A. M., & Perry, J. L., (2006). "Collaboration processes: Inside the black box," *Public administration review*, 66(s1), pp. 20-32.
- Todeva, E., & Knoke, D., (2005). "Strategic alliances and models of collaboration," *Management Decision*, 43(1), pp. 123-148.
- The new Nike+ running experience: smarter, more social more motivational, Retrieved on June, 2012, from <http://news.nike.com/news/nikeplus-experience>

- Toray our business, Retrieved on 2014, <http://www.toray.com/products/index.html>
- Toray Industries, Inc., (2006). "Forming the UNIQLO-Toray Strategic Partnership," Toray Industries, Inc., Tokyo.
- TORAY×UNIQLO strategic cooperation products - stage 2, Retrieved on 2007/10/24, from, <http://www.fastretailing.com/eng/group/news/0710241600.html>
- Uchihira, N., Kyoya , Y., Kim, S. K., Maeda,K., Ozawal, M., & Ishii,K., (2007, August). "Analysis and Design Methodology for Recognizing Opportunities and Difficulties for Product-Based Services," *Portland International Center for Management of Engineering and Technology*, Portland, pp. 2755-2762. doi:10.1109/PICMET.2007.4349613
- Umemoto, K., (2002). "Managing existing knowledge is not enough," *The strategic management of intellectual capital and organizational knowledge*, pp. 463-476.
- Uniqlo Company mission and vision, Retrieved on 2014, from <http://uniqlo.archive.tha.jp/us/company/>
- Uniqlo global store locator, Retrieved on 2014, from <http://uniqlo.archive.tha.jp/us/stores/index.html>
- Vargo, S. L., & Lusch, R.L., (2004) "Evolving to a New Dominant Logic for Marketing," *Journal of Marketing*, 68(1), pp. 1-17. doi:10.1509/jmkg.68.1.1.24036
- Vargo, S.L., Maglio, P.P., & Akaka, M.A., (2008) "On Value and Value Co-Creation: A Service Systems and Service Logic Perspective," *European Management Journal*, 26(3), pp. 145-152. doi:10.1016/j.emj.2008.04.003
- Van Gelderen, M., van de Sluis, L., & Jansen, P., (2005). "Learning opportunities and learning behaviours of small business starters: relations with goal achievement, skill development and satisfaction," *Small Business Economics*, 25(1), pp. 97-108.
- Vandermerwe, S., & Rada, J., (1988). "Servitization of Business: Adding Value by Adding Services," *European Management Journal*, 6 (4), pp. 314-324.
- Visnjic Kastalli, I., & Van Looy, B., (2013). "Servitization: Disentangling the impact of

- service business model innovation on manufacturing firm performance,” *Journal of Operations Management*, 31(4), pp. 169-180.
- Wellman, J. L. (2009). “*Organizational Learning*,” Palgrave Macmillan. Basingstoke, UK.
- Wood, J. B., Hewlin, T., & Lah, T., (2011) “*Consumption Economics: The New Rules of Tech*,” Point B, Inc., San Diego, USA.
- Wise, R. & Baumgartner, p., (1999), “Go downstream: the new profit imperative in manufacturing”; *Harvard Business Review*, 77(5), pp. 133-141.
- Werner, R., & Ulaga, w., (2008) “How to Sell Services More Profitably,” *Harvard Business Review*, 86(5), pp. 90-96.
- Weeks, R., (2010) “The Culture and Skill Challenges Associated with Servitization; A South African Perspective,” *Journal of Contemporary Management*, 7(1), pp. 110-128.
- Weeks, R., & Benade, S. (2014, July). “Servitization: An integrated strategic and operational systems framework. In *Management of Engineering & Technology (PICMET)*, 2014 Portland International Conference on IEEE, pp. 3272-3280.
- Youndt, M. A., Snell, S. A., Dean, J. W., & Lepak, D. P., (1996). “Human resource management, manufacturing strategy, and firm performance,” *Academy of management Journal*, 39(4), pp. 836-866.
- Zollo, M., & Winter, S. G., (2002). “Deliberate learning and the evolution of dynamic capabilities,” *Organization science*, 13(3), pp. 339-351.
- Zott, C., & Raphael A., (2010) “Business Model Design: An Activity System Perspective,” *Long Range Planning, Special Issue on Business Models*, 43(1), pp. 216-226,.
- Ziman, J., (ed.) (2000). “*Technological Innovation as an Evolutionary Process*,” Cambridge University Press.

Appendix

Telenor and Grameen global partnership based on Business to Business to Government to Society:

There is a global partnership between Norway-based multinational telecom operator ‘Telenor’ and Bangladeshi famous NGO ‘Grameen’ for revolutionize society via developing the telecommunication service infrastructure that generated collective well-being solution. We discuss this collaboration case on the basis of secondary data and face to face interview data with Grameenphone and Grameen family organization’s officials.

- **Grameen Group:** The Grameen group is a combination of multi-faceted organizations of profitable and non-profitable ventures established by Dr. Muhammad Yunus. It has grown beyond the Grameen Bank (GB). (*source: Yunus M. (2006). Grameen Bank at a Glance. Grameen Bank, April. Found at <http://www.grameen-info.org/bank/GBGlance.htm>*). From 1989 the bank initiated to extend the basis of its service lines by establish new organizations under the brand name of Grameen, such as the Grameen Fisheries Foundation, Grameen Krishi Foundation. And all service organization became part of the Grameen Family of Organizations.
- **Telenor Group:** The Telenor group is one of the world’s major mobile operator founded in 1855. Currently it is providing its services in thirteen markets and an additional 17 markets (*Source: Telenor Group; Telenor at a glance. (2014). [accessed at <http://www.telenor.com/about-us/telenor-at-a-glance/> on 5th March,*

2014)) through its ownership of VimpelCom Ltd. It has been one of the pioneers in developing global systems for mobile (GSM) communications services in Europe. The technological know-how and managerial expertise are key resources which makes it one of the top 500 global companies by market value.

During 1990, Telenor faced challenges in its home markets. Then it targeted to expand its business in emerging growth markets. After studied about Bangladesh and its telecommunication market, Telenor's CEO recognized though the country (Bangladesh) was overpopulated, had extreme poverty, political instability, and corruption, but could become one of most profitable growth markets. Telenor's CEO decided to run its telecommunication business in Bangladesh according to future perspectives by the method of partnership with local significant agent, the 'Grameen Group', who had an outstanding reputation. The partnership led to two separate aims being shaped. The first was 'GrameenPhone', and the second was 'Palliphone' (*source: Malaviya, P., Singhal, A., Srivastava, S., and Svenkerud, P. J. (2004). Telenor in Bangladesh : The Prospect of Doing Good and Doing Well? (A,B,C). INSEAD Case Study Series*).

As shown in Fig. A, in this project, Grameen shared its brand name value with Telenor that was an irreplaceable resource for Telenor. This brand name value was influenced to government so that Telenor could do business in Bangladesh. Dr. Yunus; his global face image, experience, decision making skill was extra asset for this partnership that signified him as an ideal partner.

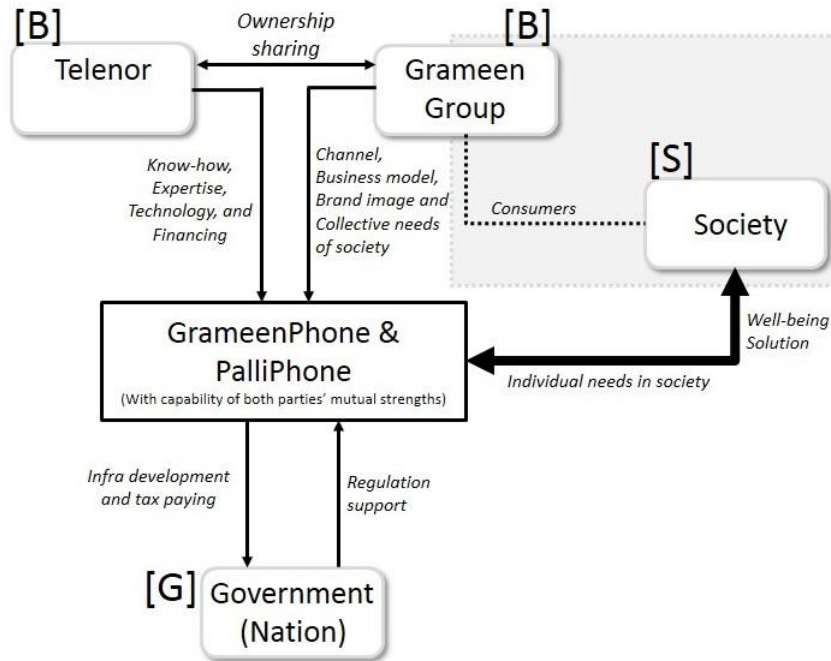


Figure A: Grameen-Telenor B to B to G to S collaboration model

Yunus image also helped to establish trust with government for regulation support and probable customers in both urban and rural areas of Bangladesh.

To achieve long-term corporate sustainability in Bangladesh for telecommunication service sector, for Telenor, it is needed to design an excellent telecom network infrastructure. In addition, Telenor needs to produce skilled HR both in technology and service-based, and to build services booth. Therefore, Telenor supported expert technology and developed a fiber-optic network in the Bangladeshi market. And all integrated knowledge from partners became a common value creation agent (GrameenPhone and PalliPhone) that performed as a powerful driver to develop the telecommunications platform to offer well-being solution. The GrameenPhone and PalliPhone was influence to social and economic change (e.g. SME, corporate work flexibility, communication elasticity, woman empowerment education rate increase, unemployment rate decrease and many more) in Bangladesh.