

Design in Operational Projects

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ABSTRACT: This paper is a brief review article to study current studies in good and service design, for a class activity in Operations management tutorial under University Malaysia Pahang Undergraduate Programs. In this paper a team of students as their tutorial work studied researches to find what the role of manager of good and service design is.

Keywords: goods and services, Operations Management; Literature review

INTRODUCTION

Good and services are interrelated. Good is a thing that fulfil the human requirement and provide effectiveness for human. While service design is an activities which contain components of a service that will be carry out by planner and organiser in order to enhance its quality and the connection between customer and service provider. Good can be described as raw materials and primary product. While service design is a design to satisfy the needs of customers or participants. In early stage, the activity of service design was considered as part of the domain of marketing and management disciplines. According to Shostack, design process can be documented and codified. After a few years, Prof. Dr. Michael Erlhoff Koln International School of Design (KISD) who is the person firstly introduce service design as a design discipline. Engine which is first service design consultancy opened for business at London in 2000. The similarity between good and service design are both also a type of output. All good are tangible while service design are intangible. Specification and construction of technologically networked social is a characteristic of service design which provide precious capacity action to a specific customer. Goods can be resold and inventory while service are product that cannot be resell and hard to inventory. Goods are transportable products whereas services are products that cannot be transported..

REVIEW

From the articles, we know that creativity and innovative design is important in cultural production systems. Design is a business-facing type of creative industry that differs in important ways from other types of cultural industries. Creativity and innovative in design generally are neglected because the others aspect get more attention such as place-based creative inspiration. Design innovation needs the combination of a wide range of different types of knowledge. Design emerges from interactions between different sites that synthesize and recombine knowledge so as to produce emergent effects and new designs. Actually, relations with clients, and firm routines and competences, are much more important to design innovation than inter-firm co-operation or the local cultural environment. 1

There are two logics or mindsets about transition from goods to service. Firstly is –good dominant logic, views services in term of a type of intangible good and implies that goods production and distribution practices should be modified to deal with the differences between tangible goods and service. Second logic is –service dominant logic which says that service is a process of using ones resources for the benefit of and in conjunction with another party so that the fundamental purpose of economic exchange and implies the need for a revised, service-driven framework for all of marketing. 2

Most of the engineers focus on the design of physical products and on their interactions with others objects, so technical services are not considered very early during the design process. Some product -service system (PSS) methodologies still exist but are focused on the system and do not sufficiently specify engineering product criteria. Indeed, to achieve the development of consistent PSS, a methodology is required to support engineering designers during the development process. The designers must consider carefully and early in the design phase the interactions between those elements. The aim of the proposed methodology is to provide engineering designer with technical engineering specifications in relation with the whole system's requirements as precise as possible for the development of the physical objects involved in those systems. 3

Industrial Product Service System (IPSS) represents a new solution oriented approach for delivering value in use to the customer during the whole life cycle of product which specified by integrated product and service shares. Article which is including motivation and definition will be lunched to describe the general approach of Industrial Product Service System. The incorporated paradigm shift from leadership in technology to leadership in use enables innovative business models. These business model will be show how a flexible solution space arises. Besides that, Industrial Product Service Systems has broad overview of the scientific issues which is complemented by exemplary research result regarding the delivery phase, like operation resource planning and modular organization. 4

Moreover, the enhancing of ecological and economical performance of industrial products are aim by the technical services. The products and services need to be integrated so it can be systematically exploit in their potentials for both manufactures and industrial customers. The resulting of Product-Service Systems (PSS) can make it possible for the customer life cycle that defined as the combination of products and services in an extended value creation network. The designed integrated of product and service components of the PSS have to be done in order to exploit their full potentials. Therefore, the proposed methods include the implementation of PSS design process by combining, selecting and adapting appropriate processing module of existing the product and service design process. 5

In another point of view, product family design and platform-based product actually has a clear development in recent years. We found that a comprehensive review of the state-of-the-art research in this field. A decision framework is introduced to reveal a overall view of product family design and platform-based product development, including both frontend and backend issues. The review is organized according to various topics in relation to product families, including fundamental issues and definitions, product portfolio and product family positioning, platform-based product family design, manufacturing and production and supply chain management. There are also a major challenges and future research directions investigated. 6

Moreover, this paper believes that can gives incentives to provide goods that are non-excludable along social or geographic links. First, networks can contribute to specialization in public good provision. There is an equilibrium in every social network where some individuals will contribute and others will free ride. Second, specialization can benefit society as a whole through outcome arises when, contributors are linked, collectively to many agents. Lastly, a new link will increase the ability of access to public goods, but it also will increase the ability of access to public goods, but it also will reduce individual incentives to contribute. As a conclusion, overall welfare can be higher when there are a holes in a network. 7

Nowadays, the increasing requirement for innovative services forces traditional product-oriented to find the potentials and strategic importance of services. Companies can ensure their market position thus can achieve economical success through innovative service. Due to this, innovative service becomes an important part to systemize service design, development and management process as well as to tightly integrate products and services. So, service engineering (SE) and product service systems (PSS) are presented. 8

Service engineering (SE) is finding the new opportunities to innovate and design the service operations and processes of the new service-based economy. Introduction to Service Engineering provides the ways and information a service engineer needs to fulfil this critical new role. Product service systems (PSS) is motivated to satisfy customers' need, it is also a strategies to face today's competitive business environment. The PSS design is still in initial stages of development and substantial research is required to develop a practical PSS design methodology. 9

Based on the planned obsolescence, economies of scale, and new products growing demand, the classical market economy has provided a basis for emergence of throwaway society that is clearly unsustainable. The so-called circular economy which is an alternative model was based on optimised life span of a product, extended services, and remanufacturing business. For the aim of the paper is to give an understanding about the intricacy of product durability dissertate from economic and environmental perspectives and also from different stakeholder perspectives and to discuss the innovative strategies to achieve the durability of products by improving value of the durable products and maximising utilisation rate for users. 10

The research design on Western-European firms is accomplish as research methodology. The study on this can answers the following three strategic questions: what level of performance can be achieved through service strategies? What are the typical service strategies exist that enable firms to transfer from products to services? And what are the appropriate alignment of service strategies with organizational design and external environment? Besides, what have found that after-sales service provider faces with a high intensity of competition and their customers are invest in the low-priced of products. The development partners' customers are expect the specific solutions for the operating processes and they support providers' market consists of customers that looking for the outstanding quality of a product. Through the research limitations and implications, the study only focused on manufacturing firms in business-to-business markets. The originality and the value of both managers and scholars are tend to be somewhat vague to moving along the transition line from products to services by suggesting strategies. This shown that identifies specific strategies enable the manufacturing companies shift their position on transition line. Therefore, the concentrating on the right triggers are assists by the managers for implementing service strategy. 11

For instance, this article was introduced the concept of the service delivery network (SDN). It defined as two organizations or more that in the eyes of customers that are responsible for providing a connection to the overall service experience. This framework for understanding response to appeals that embedded in a series of vector Service Encounter Experience Clients with having the complementary providers as a part of journey in order to achieve their goals. Using an SDN perspective show significant different challenges for managers and providing a research opportunities on establish service concepts for challenging the current view. All the managers should recognize that to better serve the customers. They need to understand about the role they may play in customer-defined service journey and always be ready to coordinate their activities with the complementary providers. The Participation in helping build and manage SDN for customers, becomes a central challenge, or the understanding how they can fit into customer's self-designed SDN, often requiring companies to develop a new set of features. The SDN also challenges the way that anchored in the dyadic view which are many core concepts within the service research. For future inquiry, the considerable opportunity has provided. A series of research questions we present, inspired by the SDN and it organized into many categories including collaborative networks and building cooperative, customer relationship management, systems thinking, building capabilities, managing service failure and recovery, customer-to-customer interactions and so on. 12

This paper revisits the product, service distinction from an institutional perspective. Many of the literature in marketing and management has concentrate on the intrinsic characteristic of services with a view to derive implications for the management of service based firms. Producer-user interactions is nature and get dependent from a product or a service. Besides that, we also will develop the argument that services play a main role in manufacturing by increasing it and explore the reasons that underpin this trend. 13

This article examines the link between the service operations and a supplier's marketing and also its business customers' subsequent re-patronage behaviour. We have developed a dynamic model of service contract renewal for an individual firm. The contract level

recognizing the interdependence among service renewal decisions due to the company purchased from the same suppliers multiple contracts. The decision to renew the service contract is modelled as a function of price and quality of service which is measured by the supplier's service operations indicators over time. The study is investigates how the average level of service, change in the level of service (especially extreme outcomes), and regular service delivery affect the firms' service contract renewal decisions by integrating the service providers of business longitudinal data. This study context is support services high-tech systems in enterprise market in the United Kingdom and Germany, where services business indicators over time is usually skewed distribution. The firm behaviour is represented in binary choice model contract level and it was estimated as a binary response model with complementary log-log link function combine random intercepts. The study shows that after controlling for the average level of service, a firm has a few extremely beneficial experiences for a given service contract is more likely to update the service contract. Overall, the study suggests that customer retention model should comprise the variability, extent, and timing for over time the contract / product level of service delivery providers. 14

Besides that, supply chain management and marketing have been remove from models and focused on goods to more general models. Besides that, the purposes associated with partnership, value networks, service provision and value creation. Service dominant logic is one of this movement has been captured. Supply chain management apply service dominant logic in terms of service provision. In which goods are seen as service distribution or provisioning mechanisms, explore and elaborate on the concept of a value network. Other than that, model of the firm will develop as an essential service provisioning agent in a complex and adaptive value network. Lastly research and managerial opportunities are also explore. 15

Research found that nowadays, the turbulent external environment have strongly affect the on public service performance .Lack of consensus on retaining the turbulence problem or alter existing organizational structure make the problem become worst. Therefore , the first comprehensive empirical analysis is supplied to test the links between turbulence ,stability of structure ,and performance of public organizations so that it is compounded by internal organizational change .As an overall ,to improve public service performance ,the bad effects of volatility in the external environment must be lighten. 16

For improving the performance or productivity of an organization, the emerging field of service science is needed to draw on multiple disciplines and practices. There is some Human – Computer Interaction (HCI) researchers and practitioners which indicate as services that provide elements of interest to service science. For example –the user centred mind-set and techniques with –the concepts and frameworks applicable to finding out the nature and services. Both of the elements are considered long's work on the conception for HCI. It stands as important antecedent to a work which link to various strands of servicer research and can be used to provide high-level integrative models of service systems. The main concepts of UCL is domain ,task and structures and attitude .These enable us to relate systematically different streams of service research and provided more information. 17

Moreover, value for money in a project depends crucially on performance monitoring. The performance monitoring mechanism role must be examined and the effectiveness of performance monitoring and output specification must be assessed to ensure that a project can operate successfully. Besides that, the –spirit of partnership and exchange for minor contract variations in the output specification are the evidence to improve the performance or productivity of an organization. Both the public and private sectors are experience a learning process which will lead to a big improvement on organization for the future. 18

Furthermore, Gainesville develop a mobility plan prototype in order to measure critical mass of variables that must be present to attract non-motorized trips. The prototype incorporated level - of – service (LOS) performance to measure for the bicycle and pedestrian facilities. Pedestrian LOS criteria and the bicycle LOS measurement are similar but the different is pedestrian LOS incorporate specific pedestrian features. The scoring system designed for evaluating mutually exclusive or inclusive to determine all possible combination of points. Besides that, the methodology is applicable for corridor evaluation on arterial and collector roadway in urban or suburban area and the result generally corresponded to user perceptions of the facilities. LOS evaluation is useful for congestion management system to develop project recommendation and priorities, in concurrency and long – range transportation planning. 19

To improve the performance or productivity of an organization, we might use meta– analysis to determine the effect size and examine whether the effects are longer for all the situations. From our findings, we can offer suggestions intended to shape research practice. 20

CONCLUSION

In a nut shell, there are many ways to improve the performance or productivity of organizations. For instance , good and service design , quality of product , location , human resource , maintenance , layout design , inventory , supply – chain management and so on . In all of that, our group believed that good and service design is the best way to improve the performance or productivity of organizations. This had been proven from the summarized article above. We strongly agree that good product and effective service which provide to customers will improve the performance or productivity of organizations.

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REFERENCES

- [1] Peter Sunley, 2008, Innovation in a creative production system: the case of design, Oxford University Press, Issue: 8(5) Page: 675 – 698.
- [2] Stephen L. Vargo, Robert F. Lusch, 2008, From goods to service(s): Divergences and Convergences of logics .

- [3] Timothy W. Simpson, 2007, Product family design and platform based product development : a state – of – the – art review ,
luwer Academic Publishers – Plenum , Volume 18, Issue: 1, Page: 5 – 29.
- [4] Horst Meier, Oliver Volker, Birgit Funke, 2011, Industrial Product Service Systems (IPSS), The International Journal of Advanced
Manufacturing Technology, Volume 52, Issue: 9 – 12, Page: 1175 – 1191.
- [5] Jan C. Aurich , Eric Schweitzer , Carsten Mannweiler , 2008, Integrated Design of Industrial Product – Service Systems,
Springer Link, Page: 543 – 546.
- [6] Nicolas Maussang, 2009, Product – service system design methodology: from the PSS architecture design to products
specifications, Taylor & Francis, Volume 20, Issue: 4.
- [7] Yann Bramoulle, Rachel Kranton, 2007, Public goods in network, Journal of Economy Theory, Volume 135, Issue: 1, Pages 478
– 494.
- [8] J. C. Aurich, 2010, How to design and offer services successfully, Elsevier Ltd, Volume 2, Issue: 3.
- [9] Gokula Vijaykumar Annamalai Vasantha, 2012, A review of product - service system design methodologies , Taylor & Francis ,
Volume 23 , Issue : 9 .
- [10] Oksana Mont, 2008, Innovative approaches to optimising design and use of durable consumer goods , Inderscience Publishers ,
Volume 6 , Number :3 – 4 / 2008 .
- [11] Heiko Gebauer, Carlos Bravo – Sanchez, Elgar Fleisch, 2008, Service strategies in product manufacturing companies , Emerald
Group Publishing Limited , Volume 9 , Issue: 1, Page: 12 – 20.
- [12] Stephen S. Tax, David McCutcheon and Lan F. Wilkinson, 2013, The Service Delivery Network (SDN): A Customer – Centric
Perspective of the Customer Journey, Journal of Service Research.
- [13] Luis Araujo, Martin Spring, 2006, Services, products and the institutional structure of production , Industrial Marketing
Management , Volume 35 , Issue : 7 , Page 797 – 805 .
- [14] Ruth N. Bolton, Katherine N. Lemon, Matthew D. Bramlett, 2006, The Effect of Service Experiences over Time on a Supplier's
Retention of Business Customers, Pubs Online informs, Volume 52, Issue: 12.
- [15] Robert F. Lusch, Stephen L. Vargo, Mohan Tannim, 2010, Service, value network and learning , Journal of Academy of
Marketing Science , Volume 38 , Issue : 1 ,Page: 19 – 31.
- [16] George A. Buyne, Kenneth J. Meier, 2009, Environmental Turbulence, Organizational Stability, and Public Service Performance,
Saga Journal, Issue: 40(8), Page 799 – 824.
- [17] Peter J. Wild, 2009, Longing for service: Bringing the UCL conception towards service research , Oxford Journal : Interacting
with computer , Issue : 22 (1) , Page 28 – 29.
- [18] Herbert S. Robinson and Jon Scott, 2008, Service delivery and performance monitoring in PFI / PPP project, Taylor Francis
Online, Volume 27, Issue: 2.
- [19] Linda B. Dixan, 2007, Bicycle and Pedestrian Level – of – Service Performance Measures and Standards for Congestion
Management Systems, Transportation Research Board of the National Academics, Volume: 1538 / 1996 Pedestrian and Bicycle
Research, Page 1 – 9.
- [20] James Combs, Yong Mei Liu, Angela Hall, David Ketchen, 2006, How much do high – performance work practices matter ? A
metta – analysis of their effects on organizational performance , Wiley Online Library , Volume 59 , Issue : 3 .
