THE RELATIONSHIP BETWEEN SERVICE INNOVATION MANAGEMENT PRACTICES ON PERFORMANCE WITHIN TELECOMMUNICATIONS INDUSTRY IN MALAYSIA

By

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Seyedeh Khadijeh Taghizadeh, Krishnaswamy Jayaraman, Ishak Ismail, & Syed Abidur Rahman. (2014). Innovation value chain as predictors for innovation strategy in Malaysian Telecommunication industry. *Problems and Perspectives in Management*, *12*(4), 533-539. (SCOPUS Indexed)

Seyedeh Khadijeh Taghizadeh, Krishnaswamy Jayaraman, Ishak Ismail, & Syed Abidur Rahman. (2014). A Study of Service Innovation Management in the Malaysian Telecommunications Industry. *Global Business and Organizational Excellence*. *34*(1), 67-77. (SCOPUS Indexed)

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Seyedeh Khadijeh Taghizadeh, Krishnaswamy Jayaraman, Ishak Ismail, & Mohammad Iranmanesh. (2013). Service Innovation Management on Market Performance through Relevancy of Market conditions: Guide to Telecommunications Industry, Malaysia. *Australian Journal of Basic & Applied Sciences*, *7*(4), 241-252.

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List of Acronyms Included in the Study

MNC	Multinational Company
LC	Local Company
DART	Dialogue, Access, Risk, Transparency
SPOTS	Strategy, Process, Organization, Tools/Technology, System
RBV	Resource-based view
CIT	Computer Information Technology

HUBUNGAN ANTARA AMALAN PENGURUSAN INOVASI PERKHIDMATAN PRESTASI DALAM INDUSTRI TELEKOMUNIKASI DI MALAYSIA

ABSTRAK

Persaingan dalam industri telekomunikasi memerlukan syarikat-syarikat perlu lebih inovatif dengan permintaan pelanggan yang cepat berubah untuk mencapai prestasi yang lebih baik. Dalam konteks tersebut, inovasi perkhidmatan memainkan peranan penting dalam proses keseluruhan perniagaan Syarikat. Dengan itu, kajian ini telah dimulakan untuk mendedahkan hubungan langsung antara amalan inovasi perkhidmatan pengurusan menggunakan model *SPOTS* (strategi, proses, organisasi, peralatan / teknologi dan sistem) dan pasaran dan prestasi operasi serta melalui kesan pengantara harga amalan. Kajian semasa mengkaji pengaruh nilai bersama penciptaan dan inovasi rantaian nilai sebagai dua pemboleh ubah kepada model *SPOTS*. Varians berdasarkan PLS-SEM telah digunakan untuk menguji rangka kerja konsep menggunakan 249 maklumbalas daripada pengurus-pengurus industri telekomunikasi Malaysia. Hasil kajian ini mendedahkan bahawa penciptaan nilai bersama dan inovasi rantaian nilai adalah merupakan peramal yang tulen untuk semua lima komponen model *SPOTS*. Penyelidikan empirikal semasa meneroka prestasi Syarikat Telekomunikasi bergantung kepada inovasi dalam strategi, proses, organisasi fungsian silang dan penyelenggaraan sistem. Di samping itu, amalan harga pengantara bagi hubungan strategi dan sistem integrasi dengan kedua-dua prestasi. Dari aspek praktikal, kajian ini dapat menyumbang panduan tenang amalan-amalan inovasi bagi syarika-syarikat telekomunikasi secara keseluruhannya selain turut membantu membentuk satu pelan tindakan bagi syarikat telekomunikasi lain di Malaysia khasnya, dan juga di Asia amnya. Di samping itu, kajian ini boleh

disesuaikan untuk aplikasi amalan inovasi perkhidmatan di sektor-sektor perkhidmatan yang lain di Malaysia.

THE RELATIONSHIP BETWEEN SERVICE INNOVATION MANAGEMENT PRACTICES ON PERFORMANCE WITHIN TELECOMMUNICATIONS INDUSTRY IN MALAYSIA

ABSTRACT

The competition in the telecommunications industry requires companies to be more innovative to align with the fast changing demand of customer to achieve better performance. In such context, service innovation plays a crucial role in company's overall business performance. Thus, this research has embarked on to reveal the direct relationship between service innovation management practices using the SPOTS model (strategy, process, organization, tools/technology, and system) and the market and operational performance and also through the mediating effect of pricing practice. The current study investigates the influence of value co-creation and innovation value chain as two antecedent variables on the components of the SPOTS model. The variance based PLS-SEM had been applied to test the conceptualized framework using 249 responses from managers of Malaysian telecommunications industry. The findings revealed that both value co-creation and innovation value chain were pure predictors for all the five components of the SPOTS model. The current empirical research explores the performances of the telecommunications companies depend on innovation in strategy, process, cross-functional organization, and system integration. Meanwhile, the pricing practice mediates the relationship of strategy and system integration with both performances. The practical contribution of the research serves as a guide on innovation practices for telecommunications companies and the results form a road map for other Malaysian telecommunications companies, as well as those in Asia. Further, the study may be customized for the applications of service innovation practices of other service sectors in Malaysia.

CHAPTER 1 - INTRODUCTION

1.0 Introduction

The issue of service innovation in general has come to the attention of academics, policy makers, and practitioners in recent times. Although innovation is complex and highly dynamic in nature, scholars have asserted that innovation demands effective managerial judgment and decision making (Milling, 1996). However, the complexities associated with service innovation in the developing world have not captured much attention in the extant research. In most developing countries there is a tendency for businesses to follow the crowd and practices the traditional business values, thereby avoiding the creative path of management practices (Jackson & Harris, 2003; Pawanchik et al., 2011). Although the businesses follow the traditional business approach, the competition in developing countries still exists. Thus, industries need to come up with new ideas and start to explore venues of innovative approaches in their practices for their better performance and growth. Similar to other industries such as electronic and Fast Moving Consumer Goods (FMCG), the telecommunications industry necessitates innovation practices as an effective business strategy to strive for cost reduction, improvement of overall performance, and increase growth.

Considering the above issue, the current study has postulated that the practice of service innovation management helps Malaysian telecommunications companies to achieve better performance, which can also be facilitated by pricing practices. In addition, it has been suggested that value co-creation and the innovation value chain can play an antecedent role for service innovation management practices.

In this regard, Chapter one provides an overview on the research background, problem statement, research questions, and the objectives of the study. This Chapter also highlights the significances and contribution of the study followed by the organization of the research Chapters and definition of key terms.

1.1 Background of the Study

In recent times, the issue of innovation has become a global factor and most important ways to drive for economic achievement for any countries. However, as innovation is dynamic, companies of all sizes and from different geographic locations are in a competitive position (The Economist, 2014). Such context has placed the companies in difficult situation and pushing for findings new ways to prevail in the market with better performance. According to a joint report prepared by Cornell University, World Intellectual Property Organization, and INSEAD, innovation is a subject of greater importance, which not only brings higher performance but also act as a stimulator for sustainable growth in a competitive market. The report has also identified that government, incubation, infrastructure, markets, and businesses are crucial factor for innovation ecosystem (The Global Innovation Index, 2014).

The data from the The Global Innovation Index (2014) demonstrates (Figure 1.1) that in 2013-2014, the top ten countries (which are also considered as innovation-driven economies) in innovation performance are Switzerland, United Kingdom, Sweden, Finland, Netherland, USA, Singapore, Denmark, Luxemburg, and Hong Kong (China). Each of these countries contributes to the world market with a special product with excellence in innovation. For instance, ARM holding, a company from United Kingdom, has become top most innovative company in Europe and ranked 3rd in world by designing semiconductor, and microprocessors. Singapore (ranked seventh) as one of the Asian country, provides a world class logistics and shipping port and serves as an economic market data center for foreign companies based in South East Asia. In context of the telecommunications industry, SBA telecommunications from USA has been ranked at 39th and DiGi from Malaysia has been ranked at 100th in the list of most innovative companies in world (Forbes, 2014).

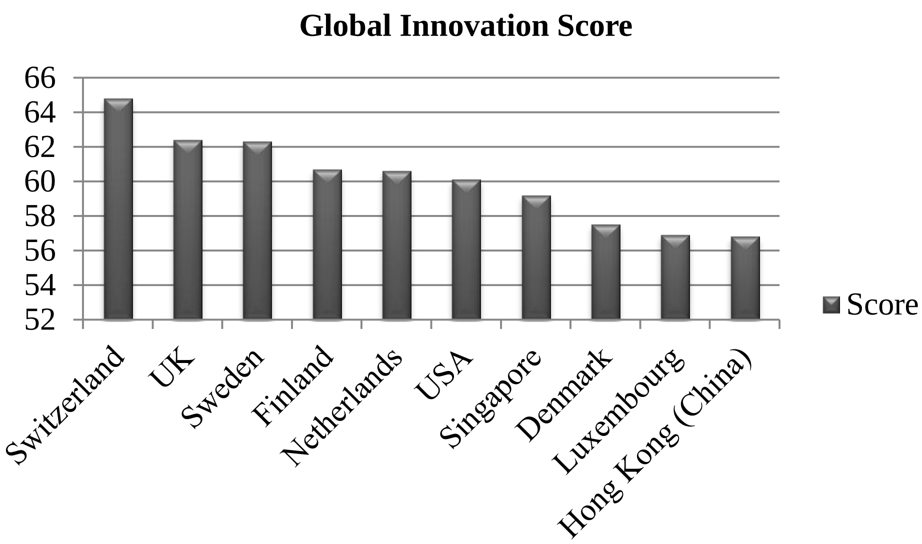

Figure 1.1: Global innovative score of top ten countries

Source: The Global Innovation Index (2014)

Comprehensively, innovation brings better performance which consequently turns the companies towards expansion. The Forbes data shows that most of the leading/biggest companies (e.g. Exxon Mobil, General Electric) in the world are originated from USA. Two telecommunications companies from Malaysia, Axiata (ranked in 861) and Maxis (ranked as 1344) in the world's top 2000 leading/biggest companies list. However, there is a perplexity exist regarding the innovation, in terms of its applicability in the types of industries such as manufacturing, and services. Innovation not only centers in the manufacturing industry rather it is also dominant in the services industries. Many of the world's top innovative companies belong to the service industry such as, Amazon.com (ranked 3rd), The Priceline group (ranked 16th), and Mariott International (ranked 18th). In addition, Stericycle provides healthcare service that has been ranked at the 21; a company from USA, MasterCard has been ranked at 32 in the world's most innovative companies list (Table 1.1).

Table 1.1: World's top innovative service companies

Industry	Company name	Country	Innovative companies ranking	Global leading ranking
Internet Catalog service provider	Amazon.com	USA	3	452
Business and personal services	The Priceline group	USA	16	654
Hotel & Motel service industry	Marriott International	USA	18	878
Healthcare service	Stericycle	USA	21	1959
Data processing services	MasterCard	USA	32	506
Telecommunications service	SBA Communication	USA	38	-
Telecommunications service	DiGi*	Malaysia	100	-

Source: Forbes (2014); *Parent company is from Norway

The above mentioned data and information gives a holistic picture of innovation around the world. However, it is also interesting to understand the situation of innovation within the companies. Narrowing down to the state of innovation in the companies, the renowned consulting firm, Price Waterhouse Coopers has come up with a balance scorecard for innovation. This balance scorecard will enable to understand the state of innovation among the leading and large companies in the world. According to the survey by Price waterhouse Coopers (2014), among 1,757 executives around the world, innovation proved to be the driving factors for achieving the performance and growth. However, innovation cannot be happen in a standalone condition, rather it goes through certain stages. In the survey, innovation strategy, innovation processes, collaboration for innovation were dominant areas where most of the companies found to have given greater importance. The following Table (1.2) depicts the result of the survey, which gives an overall scenario regarding innovation around the global companies.

Table 1.2: Balance scorecard for innovation

Focused areas	**Result**
Recognize the importance of innovation	67% of the most innovative companies say innovation is a competitive necessity compared with 19% among the least innovative.
Innovate with purpose	The most 32% of innovative companies are more concerned about developing the right innovation strategy compared with 20%.
Coherent strategy	Nearly 80% of the most innovative say they have a well-defined innovation strategy compared with 47% of the least innovative.
Innovation as management process	The most innovative (78%) companies are more likely to manage innovation efforts formally or in a structured way compared with 66%.
Usage of social media to innovate	The most innovative companies use social media more often to collaborate externally: 67% vs. 39%.
Collaboration	When it comes to developing new products and services with external partners, the most innovative companies (34%) collaborate over three times more often.
Reap the rewards	The most innovative companies (62.2%) are growing at a much faster rate.

Source: Price waterhouse Coopers (2014)[1]

[1] http://www.pwc.com/gx/en/innovationsurvey/index.jhtml

The success of innovation in service industry depends on the company's efforts and investments in management through connecting the innovation solution to the market and gain competitive advantage. As the service industry has been the fastest growing, it faces a severe competition. In a competitive market, the service providers may tend to offer innovative products (goods and services) to triumph over the competition and later create value. Advanced economies are dominated by service sectors and its activities (Gallouj & Windrum, 2009; Lu et al., 2009; Segarra-Blasco, 2010) which are pushing service companies to rethink their existing business model in terms of a more innovative approach. The growth of service has intensified competition among companies, and makes them search for continuous change and integrate innovation activities in their business practices. Even manufacturing companies opt to add more service innovation within their product delivery and decision-making process (Kindström et al., 2013; Ulaga & Reinartz, 2011) as part of a solution or wider function (Carlborg et al., 2014).

Hence, innovation can play a critical role in the competitive business arena and act as a fundamental instrument to increase the strategic competitiveness of an organization. Competitiveness achieved through innovation, enhances existing market position enables firms to enter new markets (Gunday et al., 2011). A new market with a competitive advantage provides a base for further development, enhances product quality, and provides the benefit of reduced costs (Syson & Perks, 2004). As firms reduce unit costs and improve production routines, there may be price advantages over competitors and performance enhancement (Gellatly & Peters, 1999). Therefore, innovation can contributes to overall business performance, which correlates with previous research (Eisingerich et al., 2009; Grawe et al., 2009; Hull, 2004b; Tidd & Bessant, 2009). Performance achieved through innovation improves customer perceptions, thus resulting in sustainable competitive advantage (Gunday et al., 2011).

As part of strategic decision to achieve better performance, nowadays companies are allowing customers to interact and participate in the innovation activities. Interaction with customers in innovation activities co-create value for both side and ultimately bring better performance. In fact, in emerging economies, the traditional value creation strategies for innovative service development are losing their effectiveness. Companies which follow conventional company-centric practices face trouble in terms of decreased customer satisfaction and profitability. As a result, companies are now focusing more on leveraging external resources such as customers, rather than internal efficiency, in order to gain new competitive advantages (Prahalad & Ramaswamy, 2004a; Zhang & Chen, 2008). All traditional boundaries of industries are disappearing due to the emergence of active, informed and connected customer in the competitive landscape, which allows firms be customer-centric rather than company-centric (Payne et al., 2008). Customer centricity shapes the new creation process of value and enable the customer to be an active co-creator of value, which is presenting opportunities for companies in the competitive arena (Prahalad & Ramaswamy, 2003). Accordingly, interaction with the customer enables organizations to deal with broader heterogeneous markets in order to better fit customer needs and firms offered product (Tanev, 2011).

With the help of technology, today's customers have become more aware of new services being offered at a global level and have become more demanding when purchasing innovative services. Customer demand has made firms more competitive in terms of changing their services (Kim & Cha, 2000). As a result, many companies have incorporated better features and quality into their product-service offerings in response to customer needs and to maintain customer grip (Victorino et al., 2005). On the other hand, services are highly heterogeneous and require a variety of innovation activities (Martínez-Ros & Orfila-Sintes, 2009). For this reason, involving customer themselves in the business process will help the organization to get innovative ideas and supply services based on customer desires (Gummesson, 1994). Customer involvement can happen by means of close relationship between the organization and the customer. Satisfying customer needs through excellent service enables companies to gain a competitive advantage over their rivals and encourages managers to change their decision-making processes. Differentiation and offering innovative service-products remains a key element of change and enables companies to be distinct from their competitors (Victorino et al., 2005).

A prime example of innovation is getting away from the normal hierarchical thinking that a firm goes through when it offers a service. Crushpad, a wine producer, for example, has turned its service offering to a new way of customer interaction. Curshpad's idea caters to wine buyers in terms of its existing products, which encouraging them into new markets. In the new market, small niches of people prefer to create their own blend of wine, which has been offered to the service producer. The economic benefits are that the risks of creating something that people would not like drinking are reduced, yet leasing their services to this specific niche helps revenue growth (Crushpad, 2013).

1.1.1 Global Competitiveness Index Analysis for Malaysia

The World Economic Forum, every year publishes the Global Competitiveness Report, which provides the competitiveness status of every country

(World Economic Forum, 2014). Malaysia has been considered as efficiency driven economy since 2008 till 2011. In the year of 2012, the country was able to move forward to the transitional phase of innovation, which indicates that the economy of the country is mostly moving towards innovation driven. The global competitiveness index indicates that Malaysia is experiencing fluctuation in the world ranking of competitiveness. As, in 2008 Malaysia was ranked at 21^{st}, in 2011 slipped to 26^{th}, in 2012 recaptured the position of 21^{st} and in the following year the country tumbled down to 25^{th} position (World Economic Forum, 2014).

In addition, the report shows that Malaysia was able to higher its rank in terms of basic requirements, mobile telephone subscribers, company spending on R&D, and capacity for innovation. Although, the country was able to position itself in better in capacity for innovation, but in terms of innovation, the improvement is not that much of noteworthy. Such context suggests that having a better capacity for innovation, in overall the rate of innovation is not significant (Table 1.3).

Based on the Table 1.3, Malaysian service industry plays crucial role to the contribution of the Gross Domestic Product (GDP). The Global Competiveness report (2008-14) indicates that the contribution of the service industry is increasing at a significant pace from 39.6 per cent to 45 per cent, which corroborates the importance of this industry in the economic development. In the service industry, telecommunications exist as second most contributory sub-sector to the total GDP after insurance activity in 2012 (Department of Statistics Malaysia, 2013). In 2013, the communication sub-sector mainly the telecommunications activities strengthened at 9.0 per cent from the 8.5 per cent (2012) growth of the service sector to Malaysia's economy, according to the data from Department of Statistics Malaysia (2013).

Therefore, it is important to look into the telecommunications industry of Malaysia with more focused view.

Table 1.3: Global competitiveness index analysis for Malaysia (2008-2014)

Stage of Development*	**2008-09** **2**	**09-10** **2**	**10-11** **2**	**11-12** **2**	**12-13** **2-3**	**13-14** **2-3**
Global Competitiveness Index	21	24	26	21	25	24
Basic requirements	25	33	33	25	27	27
Efficiency enhancer	24	25	24	20	23	25
Innovation and sophistication factors	23	24	25	22	23	23
Innovation	22	24	24	24	25	25
Infrastructure	23	26	30	26	32	29
Technological readiness	34	37	40	44	51	51
Mobile telephone subscriptions	56	51	47	40	33	27
Internet users	20	22	39	40	41	39
Availability of latest technologies	29	36	35	35	35	37
Firm-level technology absorption	21	37	30	28	29	33
Capacity for innovation	21	25	25	19	17	15
Company spending on R&D	18	19	16	13	16	17
Value added to the GDP (service industry)	39.6%	42%	42%	46%	46%	45%

Source: World Economic Forum (2014)

*Stage 1= Factor driven; Stage 1-2= Transition (Factor to Efficiency); Stage 2= Efficiency driven; Stage 2-3= Transition (Efficiency to Innovation); Stage 3= Innovation driven

1.1.2 Telecommunications Industry in Malaysia

Telecommunications industry is considered as a platform for overall development of any country. This industry is significantly contributing to flourish the society in general and economy in particular. Through the amazing innovation initiatives, the telecommunications industry has literally changed the human civilization, its culture, its pattern of living. From a developed nation to under developed country, the telecommunications industry has printed its footstep through remarkable innovation. The successful business in this industry remains alert to take on new and retain the existing customers. According to the World Trade Organization (2014), telecommunications industry holds global market worth over US$ 1.5 trillion in revenue. Within this industry, mobile services comprise approximately 40 per cent, while the number of worldwide mobile subscribers has outstripped the use of fixed telephone lines. It has been also mentioned in the World Trade Organization (2014) that over the last few decades the telecommunications market is witnessing extensive dynamism, with the entrance of competitors irrespective of regional locations. However, the Asian region has witnessed rapid economic growth in recent years and service activities have emerged as a critical consideration in enhancing the pace of economic development.

According to the Malaysian Investment Development Authority (2014), Malaysian government has arranged the framework for the New Economic Model to make Malaysia from a middle-income to a higher-income economy based on innovation, creativity and high value sources of growth. Under this model, some industries such as telecommunications and mobile services are targeted. According to data from the Economic Transformation Programme (2013), Malaysian telecommunications industry has done well among East Asian countries in 2009 and contributed 4.9 per cent to Malaysia GDP (Figure 1.2).

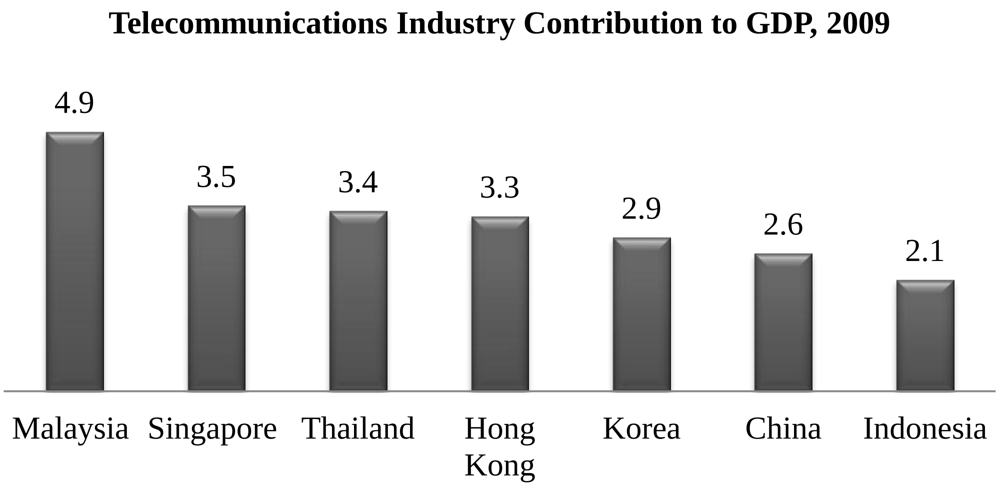

Figure 1.2: Telecommunications industry contribution to GDP, 2009

Source: Economic Transformation Programme (2013)

The value added contribution of the Malaysian telecommunications industry to GDP is higher compared to other Malaysian communications and multimedia commission (MCMC) industries such as broadcasting, postal sectors, and others. The value was estimated at about RM14 billion in 2008 and increased to RM22 billion in 2009 (MCMC Annual Reports, 2010). The total revenue from the telecommunications industry found to be at large in the Malaysian economy. Due to the massive effort by different standpoint and intriguing market, the revenue from the telecommunications industry is pluming over the past few years. The data form Malaysian communications and multimedia commission (MCMC, 2014) illustrates that revenue generated from the telecommunications industry rose to RM 45.3 billion in the year of 2013 from RM 19 billion in 2004 (Figure 1.3).

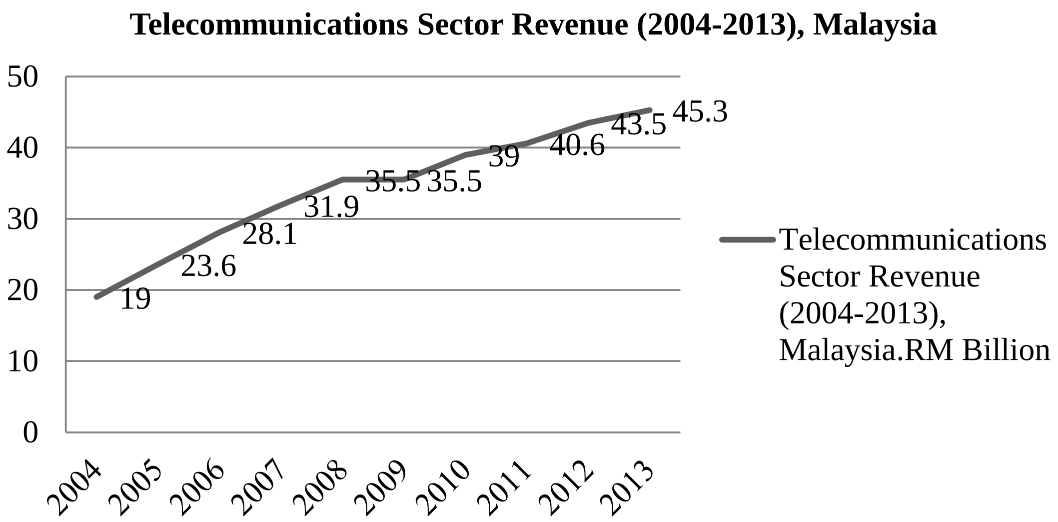

Figure 1.3: Telecommunications sectors revenue (2004-2013), Malaysia

Further, according to the statistics on communications and multimedia from the Anuual Report Broadband Towards 1Malaysia (2009), 87 per cent of the market share in 2009 came from major telecommunications sectors. Statistics shows, the communications and multimedia industry in Malaysia has performed with 4.5 per cent growth in revenue which was mainly dominated by the telecommunications sector with nearly 85 per cent share of the revenue growth (MCMC, 2014).

Telecommunications networks in Malaysia are more advanced compared to any other South-east Asia after Singapore (Market Watch, 2012). The advancement of telecommunications networks has come mainly through digitalization, optical fibers, satellites and wireless transmissions. As modern technologies, these are utilized with next generation networks, unified communication, 3G and 4G content, WIMAX (Worldwide Interoperability for Microwave Access) digital TV, VOIP (Voice Over Internet Protocol) and sensor technology. In addition, technologies like IPV6 (Internet Protocol Version) and digital TV are available. Transactions and services such as unified communications, data center services, authentication services, e-commerce, payment services and billing are conducted daily through telecommunications services (Market Watch, 2012).

The market structure of Malaysian telecommunications industry is considered as oligopoly, as there are only a few firms in telecommunications industry such as Maxis, Digi, and Celcom reported by Economics Talks Only (2012). The theories in macro economy have defined oligopoly a market which is dominated by a few large firms of a homogeneous or differentiated product (McConnell et al., 2009). In the oligopoly market, there are only few firms which have considerable control over their prices, but each firm must consider the course of actions, activities, and reactions of the rivals (Noam, 2006). In an oligopolistic market, once a firm increases its prices, the competitor will not follow the price increase rather if there is a reduction in price, competitors usually follow the reduced price in order to retain their customers (McConnell et al., 2009). For instance, in the Malaysian telecommunications industry, if firm A reduces their price of the services they provide, other few large firms also might reduce the price of their services to retain the existing customer base. Furthermore, in oligopoly market, high barriers to entry for new competitors exist to a greater extent. Such barriers to entry impede the other new entrants in competing in the market due to the high startup capital cost (McConnell et al., 2009).

However, the success of the telecommunications industry depends on the efforts and investments of the individual companies. As telecommunications systems have been the fastest growing industry, it faces severe competition. In a competitive market, the telecommunications service providers may offer innovative services due to breathtaking competition to attract customers and to meet the customer requirements and expectations. In Malaysia, the competition in the telecommunications industry is very much fierce. Companies such as DiGi, Maxis, Celcom, Yes mobile, U-mobile, tune talk are successfully running their business operations, serving a vast and diversified customer base in Malaysia. In order to increase their market shares, all these companies frequently introduce innovative services. However, three companies are currently dominating the Malaysian market, which are having full mobile network operation capability (Celcom, Maxis, and DiGi). DiGi is a foreign subsidiary while Maxis and Celcom are Malaysian public limited company. DiGi and Maxis are recognized as the top two innovative companies and contribute greatly to Malaysian GDP (Pawanchik et al., 2011).

1.1.4 Motivation of the Study

There are significant innovation challenges in the Malaysian context which is the motivation for the current study. In reality, even though there are some success stories, the true scenario of the Malaysian service industry's contribution to GDP is that it is still not innovation driven, rather it is in a transitional stage from efficiency driven towards innovation driven (World Economic Forum, 2014). The transformation has to take place from efficiency to innovation to achieve the desired outcomes. Further, Malaysia fell in its global competitiveness (in terms of innovation) by four positions from 2008 to 2014, and was ranked in 24th out of 144 nations (World Economic Forum, 2014). The Economic Intelligence Unit (EIU) has indicated that the Malaysian innovation ranking may decline in future because China and India are catching up fast (Pawanchik et al., 2011).

As researchers indicate, innovation policies in Malaysia are more oriented towards Research and Development (R&D), and science and technology driven innovation, rather than modern approaches in innovation such as service innovation, open innovation, or business model innovation (Pawanchik et al., 2011). In addition, at the present time, innovation is only just beginning to be a part of company culture in Malaysia and the focus is still on benchmarking, operational efficiency, copying competitors, cost cutting, and heading off competition. And also, in Malaysia, managers have a tendency to consider innovation mainly in the field of only technology (Idris, 2008).

This is a confirmative sign, which ensures emphasis is needed to improve different service sectors in Malaysia. In such a situation, companies should invest more time and effort to broaden innovation policy to connect the innovation solution to the market or to the customer to create value.

1.2 Problem Statement

Malaysian telecommunications industry is continuing to experience fierce competition in the market almost daily basis with presence of three major companies namely Maxis, Digi, and Celcom (Kamarudin et al., 2014). Previous academic research on Malaysian telecommunications industry has mostly focused on the issues highlighting government regulations, customer satisfaction, and customer loyalty (Nikbin et al., 2012; Wong et al., 2014). Further, Salazar (2007) studied political-structural-historical conditions that shape the adoption of strategic reforms of telecommunications industries in Malaysia. However, according to Wong et al. (2014), there is a lack of systematic analysis of the process of telecommunications industry development in Malaysia. Also it has been noted that diffusion of telecommunications technology is severely lacking in the developing countries, especially in Malaysia (Wong et al., 2014). In another research, Nikbin et al. (2012) found that most of the Malaysian telecommunications company's service delivery fails due to not being aligned with the customers' trend which impacts on the switching off among the customers. In addition, in Malaysia the perception on innovation is still obscure. As noted in the literature, in Malaysia there is a tendency to equate innovation with high technology and ignore the development of novelties in the administrative areas such as marketing and human resource (Idris, 2008). In such paradox, it is an assertion that such situation perhaps could be averted if Malaysian telecommunications companies manage their services in an innovative way and practice customer integrated service innovation.

Innovation itself is very complex and dynamic in nature (Tidd et al., 2005). Most innovation projects face lots of challenges and demands despite the capability of the company to design and produce a high quality of products and services. About 50 to 90 per cent of innovation projects fail in the marketplace before achieving the goals of the organizations (Downey, 2007). In the ever dynamic and competitive environment of the 21st century, firms are struggling to improve performance in order to stay ahead of their competitors. Service-oriented films also not exception and operate in a complex and dynamic environment which emphasize on the relationship between service providers and customer (Kim et al., 2015). Thus, in order to compete in today's hypercompetitive service-oriented marketplace, service firms require strategies that allow them to compete on service innovation. Service innovation is not a new concept (Miles, 1993), but research on innovation focus more on technological innovation by manufacturing (Toivonen & Tuominen, 2009; Vries, 2006), and mostly ignore service innovation and its inherent opportunities (Carlborg et al., 2014). However, the issue of service innovation is currently generating a great deal of attention for service researchers, pundits, and practitioners at the global level (Alam, 2011; Droege et al., 2009; Ettlie & Rosenthal, 2012; Gallouj & Windrum, 2009; Panesar & Markeset, 2008; Van Riel et al., 2013). Scholars found that service innovation encourages the design of new services, enhances the delivery of services, enables a company to keep pace with dynamic changes occurring in the business environment, achieve or improve performance in the marketplace, and secure competitive advantage (Gunday et al., 2011; Hull & Tidd, 2003a; Jiménez-Jiménez & Sanz-Valle, 2011; Lin et al., 2010; Möller et al., 2008; O'Cass et al., 2013; Ottenbacher, 2007; Ruivo et al., 2012; Salunke et al., 2013).

Although the service innovation literature is growing, research frameworks for the management of service innovation remain scarce (Frei, 2008; Kim et al., 2015; Möller et al., 2008). Further, the need to thrive and secure competitive advantages in an agile environment, the practice of service innovation is an important issue to study (Riel, 2005). Therefore, in the currrent study, a research framework is presented that study the components of the SPOTS model (strategy process, organization, tools/technology, and system integration) as service innovation management practices in the service sector (Tidd et al., 2001). The SPOTS model is about novelties in the administrative areas such as marketing and operation and has been tested in developed nations and found that it contributes in enhancing of new service development performance (Hull, 2003; Hull & Tidd, 2003a). In fact, the SPOTS model investigates the relationship between internal firm resources and relational capabilities, and how they interact and evolve to generate better service innovation in a dynamic environment. As such study in the developing nations like Malaysia found to be rare, the current study addresses the gap by considering the SPOTS model to understand to what extent such management practices can help

Malaysian telecommunications industry to offer customer aligned service and thus improve their performance.

The continuous popularity of innovative service development among customers is making firms more to rely on innovation activities to satisfy customers' demands. Hence, firms are putting substantial efforts to create values with their customers as part of innovation process to attain the competitive advantages (Prahalad & Ramaswamy, 2003). The development of market is driven by identifying the right need of customers and customizing the offerings in accordance (Bharti et al., 2014). To materialize this process, it requires constant connection through interaction and also participation of the customer, which signifies the value co-creation (Bharti et al., 2014). Indeed, value co-creation applies the initiatives of firms' innovation *with* the customers, rather than *for* the customers, which is now being considered as a stimulating issue in the market industry. In this line, scholars have argued that in emerging economies the traditional value creation strategy for innovative service development is losing its effectiveness (Zhang & Chen, 2008). Thus, companies are now focusing more on leveraging external resources such as customers, rather than internal efficiency to gain new competitive advantages (Prahalad & Ramaswamy, 2004a; Zhang & Chen, 2008). Value co-creation challenges the conventional value creation process through enabling the customer to personalize its products and services (Lusch & Vargo, 2008) which has been seen as a shift from product-and-firm-centric view to customize customer experiences (Payne et al., 2008). In the conceptual argument of value co-creation, Prahalad and Ramaswamy (2001) proposed the DART model (dialogue, access, risk assessment, and transparency) as the key building block in the process of value co-creation in order to lessen the conventional information asymmetry between customers and the firm. The DART model is an important strategy to facilitate management practices for successful new service development (Prahalad & Ramaswamy, 2004a). Despite the importance of value co-creation, research on the key building blocks of value co-creation (DART) has been largely overlooked. It has been found that thus far the appropriate construction of the measurements of the DART model has been ignored. Previously, value co-creation was measured from a different standpoint (Lin et al., 2010; Zhang & Chen, 2008). Therefore, this research aims to validate the scale measurements of DART constructs as part of the value co-creation process and to explore to what extent the DART model is practiced by the companies, even though, they may believe in value co-creation with their customers.

The SPOTS model signifies the innovation management practices, which should be implemented not only based on company's own decision. Rather, to achieve the competitive advantage in the market, it is important to take decisions by sensing the pulse of the customers. As the value co-creation suggests having an interaction with the customers, it is in need for research to consider the customer interaction to the practice of SPOTS. While the innovation practices are being implemented in the company, customers should also have interaction regarding the company's business operation. However, many companies' innovation initiatives were failed due to the incapability of tagging the customers (Hinterhuber, 2004). Therefore, creating the value with the customers is important in the domain of innovation management practices. In the extant literature, emphasizes have been given on the practices of SPOTS model and its outcome. However, lack of research has been found with regard to the role of value co-creation as a predictor for the components of the SPOTS model. Such context came out to be one of the puzzling issues in the scholarly field of innovation management. Thus, the current study addresses the gap in the research by attempting to understand the effect of value co-creation on the components of the SPOTS model as such a study found to be rare.

Changes in environment make organizational boundaries more dynamic in order to response to the knowledge about new service development. The process of new service development represents a series of knowledge initiatives imposed by various parties which lead to the creation of value (Oliveira & Sbragia, 2013). The innovation value chain from idea generation, conversion, to diffusion benefits firm in gathering knowledge and ideas for new service development (Hansen & Birkinshaw, 2007). The advantage of the innovation value chain is the linkage of stakeholders in the process of innovation from the beginning to the end of new service development (Ganotakis & Love, 2012) in which knowledge about new services is gathered, transformed, and exploited (Roper & Arvanitis, 2012). The innovation value chain enables managers to find the company's weaknesses and to better be able to perceive which innovation approach should be implemented (Hansen & Birkinshaw, 2007). However, the occurrence of errors in value chain management which do not fulfill the established goals of the company need to be highlighted (Oliveira & Sbragia, 2013). It is necessary to understand the efficient decisions of management and the improvement of the team involved. Therefore, it is crucial to know how the innovation value chain approach helps to highlight the strengths and weaknesses of the components of the SPOTS model in the innovation management of companies.

The basic telecommunications services in Malaysia are dominated by three companies. In these oligopolistic market, threat of entry is crucial for other existing firms' profitability. Thus, price plays an important role in firms' decision process. New service development literature perceives pricing to be one of the most important decisions that firms make while the initiation of new services is undertaken (Hultink et al., 1997). Highlighting the role of pricing is crucial because leaving pricing issues unaddressed, a barrier will emerge in the implementation of innovation (Milling & Maier, 1994). Therefore, the issue of pricing has to be resolved in order for innovation to proceed and to be productive in terms company performance. However, pricing is one of the most complex decisions faced by companies (Indounas, 2006) and is a multifaceted practice requiring adequate resources and coordination efforts (Dutta et al., 2003). Central to successful pricing is an understanding of how customer value, competition, and cost information on new services affect the pricing decisions (Ingenbleek et al., 2003). However, the literature is silent about how organizational capabilities of industrial firms can affect pricing orientation and how managers integrate cost, competitive, and value information in their decision-making process (Liozu et al., 2015). In the pricing approaches, more than 40 per cent of managers are unable to correctly define customer value pricing along with company and competitor value (Liozu et al., 2012). According to Ingenbleek et al. (2003), in order to set the right price, firms should receive information from customers on the service being offered along with information about company cost and competitor price which are regarded as pricing practice. It should be mentioned that, in setting the right price, many previous studies have focused on pricing strategy rather than pricing practice (Hinterhuber, 2004; Nagle et al., 2010). Nevertheless, pricing practice is the stage before pricing strategy, which allows the organization to gather information for setting the right price (Ingenbleek et al., 2003). Considering the importance of pricing practice, however, prior research has not examined the influence of the components of the SPOTS model on performance counting the role of pricing practice. Therefore, this research is designed to shed light on the research lacuna, and proposes that the influence of the components of the SPOTS model on performance will be enhanced if pricing practice plays a mediating role.

Hence, based on the problems that have been identified, the current study attempts to conceptualize a research model of service innovation management practices for new service development in the context of Malaysian telecommunications industry.

1.3 Research Questions

Considering the problem statement, the current study attempts to formulate the following research questions for new service development in telecommunications industry:

1. What are the valid scales measurements for DART model of value co-creation and does value co-creation have a positive influence on service innovation management practices (components of the SPOTS model)?
2. Does the innovation value chain have a positive influence on the components of the SPOTS model?
3. Is there any positive influence of the components of the SPOTS model on the telecommunications service provider performance (market and operational performance)?
4. Do the components of the SPOTS model have a positive relationship on pricing practice?
5. Does pricing practice have a positive relationship on telecommunications service provider performance?

6. Is there a mediating effect of pricing practice on the relationship between the components of the SPOTS model and telecommunications service provider performance?
7. Does the company type (multi-national company ‘MNC’ versus local company ‘LC’) moderate between the path relationships of the conceptualized framework?

1.4 Research Objectives

Considering the research questions, the objectives of the current study are:

1. To validate scales measurements for DART model of value co-creation and investigate the influence of value co-creation on service innovation management practices (components of the SPOTS model).
2. To assess the positive influence of the innovation value chain on the components of the SPOTS model.
3. To study the positive influence of the components of the SPOTS model on the telecommunications service provider performance (market and operational performance).
4. To study the positive relationship of the components of the SPOTS model on pricing practice.
5. To study the positive relationship of pricing practice on telecommunications service provider performance.
6. To examine the mediating effect of pricing practice on the relationship between the components of the SPOTS model and telecommunications service provider performance.