

CONCEPTUAL FRAMEWORK OF
SOCIAL MEDIA AND CUSTOMER
RELATIONSHIP MANAGEMENT
AND BUSINESS PERFORMANCE
IN MALAYSIAN CONTEXT

BY

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Bentolhoda Abdollahbeigi

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DEDICATION

To my wonderful Father, Mother and my beloved
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pursue this PhD degree

ABSTRACT

In the recent times, social media, as well as customer relationship management (CRM), have become crucial issues for various organizations, especially in bigger firms because of the complex aspects of business activities. Innovation plays a significant role in helping business to attain a sustainable competitive edge, especially in developing countries such as Malaysia, where industrial growth has become an integral part of the economic development. Manufacturing is very important to Malaysia's economy and had expanded since 1970's in the era of rapid globalization. Innovation is the key to competitiveness to Malaysia like any other nation, which focuses on the manufacturing sector. Despite the importance of social media and Customer Relationship Management, the dimensions and their synergistic role in ensuring product innovation and organizational performance in Malaysian manufacturing industries are yet to be explored and established. Hence in this study, this problem was addressed by producing a comprehensive model within Malaysian.

This study established a model, testing the role of social media and customer relationship management (CRM) on product innovation and business performance in manufacturing companies in Malaysia, which should help managers to better, understand how social media and customer relationship management (CRM) and product innovation fit together in business performance. The 357 data was collected from managers in manufacturing industry; Samples was selected from seven states of Malaysia (Selangor, Penang, Johor, Sarawak and Negeri Sembilan, Melaka, Pahang).

Direct effect of social media and customer relationship management on product innovation in the revised structural model supported the positive effect of 6 factors (customer motivation, customers collaboration, electronic word of mouth, sharing of

information, long-term relationship and CRM based on technology), and didn't support 2 factors (customers involvement and Joint problem solving). Moreover, the relationships between social media, customer relationship management, and organizational performance, six dimensions were supported (customers collaboration, information sharing, customers involvement, Joint problem solving, long-term relationship and CRM based on technology) and another two were not supported (customer motivation and electronic word of mouth). Next, the relationship between product innovation and business performance was supported. Finally, the mediating effect of product innovation on relationship between social media, customer relationship management and business performance were supported in 6 factors (customer motivation, customers collaboration, electronic word of mouth, sharing of information, long-term relationship and CRM based on technology) and were not supported by 2 factors (customers involvement and Joint problem solving). Social media, customer relationship management, and product innovation are very important in manufacturing sectors as it has positive effect as shown in this study in business performance, this topic of research has considerable significance in Malaysia; A significant contribution of this research is identified the determinant of social media, customer relationship management, and product innovation will help to achieve business performance.

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ABBREVIATIONS

CRM - Customer Relationship Management

SM – Social Media

EWOM - .Electronic Word-of-Mouth

MNCs - Multinational Companies

FMM – Federation of Malaysian Manufacturer

SMEs - Small and Medium Enterprise

RBV - Resource Based View

MOSTI – Ministry of Research, Technology, and Invention, Malaysia

GERD – gross expenditure on research and development

FDIs – Foreign Direct Investment

WTO – World Trade Organization

ETP – Economic Transformation Program

NP – New Product

NPD - New Product Development

RM – Relationship Management

R&D – Research and Development

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Social media is an exciting media for development and is also one of the fast-growing business sectors. Social media has a significant influence on the way global businesses evolve as well as manage their products. Organizations are even using social media for carrying their messages or to promote their products or services (Hanna et al., 2011). SMEs and MNCs use social media for enhancing their internal operations as well as to collaborate in new means with their customers and other stakeholders (Whittaker, 2014). The value of the use of social media channels in businesses comes from the how and what type of information is shared on the social media channels (Culnan et al., 2010).

The study by Haddud et al., (2016) on social media, revealed that nearly 60 percent of the American population who uses social media, almost 90 percent believes that organizations should make use of social media for interacting. Also, 85 percent think that the company should not just present but also should communicate with the customers using social media as well as 56 percent of the users feel both powerful connection with and served by the organizations in a better way, when they have an opportunity for interacting with them in the environment of social media (Treem et al., 2012).

As per (Bhalla, 2010) with the evolution of social media channels, the interaction between customers and the manufacturers has increased and enhanced. Contemporary customers prefer to get involved in the process of product development by co-creating

value with the manufacturers, which better satisfies their needs. Facebook is the most popular and most significant social network of the modern days (Whittaker, 2014). It is comparatively a new phenomenon and is still in its developing stages. At the same time, it has within a short span of time become an integral part of most organization's or businesses marketing arm. Many forms of social media such as the Google Plus, Facebook, and YouTube as well as many others have gained considerable momentum in the web world these days. These platforms are necessarily useful for businesses as information can share with millions of people from different parts of the world within a fraction of a minute (Neilson and NM Incite 2011).

Organizations, as well as business, can use social media for serving their customers in a better way by creating communities which share mutual interests, whereby identify and understand the problems and needs of the customer quickly (Neilson and NM Incite 2011). Enterprises have to market as well as collaborate with their users (Bughin, 2009). Extensive social media platforms such as Facebook and Twitter have millions of user which indicate that customers can have free and easy communication (Barnes, 2011). Organizations can use social media more for the relationships with existing customers to develop and maintain communities which interact with customers to solve their problems and fulfilling their needs by co-creation. Establishment of relationships between businesses and customers has grown significantly with the evolution of such platforms (Whittaker, 2014).

Social media has altered the relationship between the organization and its customers in such a way that the customers feel a kind of connection with the activities of the organization. Social media is a creation of the online tools for communication which serves as conduits for the exchange of the specific participant's professional or personal ideas as well as information (Romero and Molina, 2011). Social media has an impressive influence on the domestic and global business development and manages the

new products and services for them. Organizations can utilize the social media platforms for carrying their messages as well as for promoting them to the market. Various firms implement the suggestions collected from the collaboration with the customers using social media to shape their service or products for better correspondence with the customers. (Füller, Faullant and Matzler, 2010). Social media is now ubiquitous in various commercial circles and has been a global aspect over the last many years. As per the Nielson Company (2010), users of the social media across the globe grew around 30 percentages in the year 2010; that is from 244 million users to about 315 million users.

CRM implementation by organizations started towards late 1990. CRM is crucial for today's business world to have a good rapport with the firm and the customers for creating satisfied customers in the day-to-day business. Over the last many years, various organizations have implemented CRM as a group of information processes and tools of technology which enables the development of organizational CRM (Hoonsonpon, 2012) in the recent times; CRM is utilized by many organizations to manage interaction with profitable customers. CRM is the most crucial element in the success of many business environments. The target of CRM is to have closer and in-depth association with customers and the ability of inclination of the change in the organizational behaviors towards the personal needs as well as interests of every single customer (Hoonsonpon, 2012). Good CRM among manufacturing sector and industrial customers not just maintain the customers, but also motivates them to give crucial suggestions for the enhancement of the products and services offered Nazari et al., (2015).

As per the studies of Johnston and Marshall (2010), CRM helps enhance the processes such as securing, building and well as retaining or maintaining a long-term relationship with customers who are profitable. CRM is a form of business strategy for enhancing the profitability of the organization by focusing on the needs of customers

and creation of an attentive association with the customer. According to Chaffey and Smith, (2012) CRM can increase the ability of the organizations in understanding customers as well as targeting their desires to get closer to the customers. Using CRM enables the organizations to have a complete view of their customers (Chaffey and Smith, 2012). CRM allows the managers of the organizations in the development of new products or services and enhancing the quality of them and reducing marketing related expenses as well as retaining the profitable customers (Laudon et al., 2012).

The ability for organizations to innovate may be the key factor to improve their performance and ensure their success. Innovation is frequently associated with the introduction of new and superior products. Tung (2012) figured product innovation boosts a firm's leverage in an extremely competitive market. Invention plays a substantial role in assisting business to achieve a sustainable competitive advantage, specifically in developing countries such as Malaysia where industrial growth is becoming a fundamental economic of the monetary development (Ooi et al., 2012). In a hypercompetitive global environment, business organizations in the developing countries are increasingly seeking for innovation, shifting away from the previous focus on cost reduction for long-term success. Given that the manufacturing industry is the key driver for social and economic development in the developing countries promoting innovation should be one of the priorities of developing nations in their economic agenda (Ismail et al., 2014). Product Innovations are essential for SMEs and MNCs in many ways (Jong and Vermeulen, 2006; Anderson, 2009; Mohd Rosli, 2013). Innovation is a crucial competitive advantage and considered as a valued capability considered as the core of an organization. Various examples of product innovation consist of the introduction of new products, improved quality as well as enhancing its general performance (Hoang, Paul, 2010). The value of product innovation enhances when users bring their expert knowledge of needs and desires as well as solution resulting in new products which give real value to the customers (Hoang, Paul, 2010).

Innovation can enhance the quality of the products and services, which impacts the performance of a firm and finally becomes a competitive advantage for the company.

Tung, (2012) stated that new products presented in the market during the last five years generated 41 percent of sales of the firm and 39 percent of the profits made by the company. Apart from these gains, innovation of product also has other benefits like the positive effect on the image of the firm, opening of new markets as well as the provision of a new baseline for new products for future. Product innovation's value enhances when users bring in their specialized needs knowledge, preferences as well as solutions to the innovation of products, resulting in new products which give value to its customers (Hoonsopon and Ruenron, 2012).

Manufacturing is vital to Malaysia's economy it has had expansion since 1970's. 80 percent of Malaysia's total exports come from manufacturing Malaysia is the 17th largest exporting nation globally. Because of this, Malaysian government needs to work hard to maintain, preserve and enhance the manufacturing sector (Harun et al., 2017). Most products in Malaysia are exported to western nations including the US. This indicates that the level of standards achieved by Malaysia's manufacturing industry. FDI's flow to Malaysia because of its export-oriented manufacturing atmosphere. It also has to be noted that Malaysia is currently in a shift to the manufacturing of products of higher value. Malaysia's manufacturing sector has contributed a lot to its economy and has created numerous jobs. Malaysia has excellent tie-ups with many nations and is one nation with which most countries in the west under the 'developed status' begin their relationship with other nations (Raja Musa, 2012). Malaysia can provide these nations with the capacities such as low labor cost, availability of raw materials and low capital requirements and reduced regulation practices in international trade. These strategic alliances can be beneficial to Malaysia regarding technology transfer and in monetary terms. The manufacturing sector in Malaysia has continuous development efforts.

Therefore, for attaining the level of competitiveness as well as the innovative capability that is up to the international standards, Malaysian manufacturing sector is doing their best (Akmar, 2013).

1.2 Background of the Research:

Malaysia's manufacturing sector's growth is rapid compared to the previous years. Government ensures that the present trading policies and regulations are obeyed (Raja Musa, 2012). In general, manufacturing is defined as good's production by the use of machine, labor or equipment's. The sector is crucial for expanding production, so Industrial manufacturing has a higher correlation with the other sectors which impacts the production (Harun et al., 2017). Malaysia has been termed as an industrial economy towards the 90's because of the contribution from the manufacturing sector and its rapid growth. Towards 2005 these results were much more visible. China became a member of the World Trade Organization (WTO) in the same year and started providing labor-intensive manufacturing services. Malaysia also followed these footsteps and started an export-oriented movement and attracted FDIs in the manufacturing sector. It has to be noted that Malaysia's economy which is dynamic has become much more competitive across a wide range of manufactured products and also managed to move on to the manufacturing of products which are of higher value addition (Sulaiman et al., 2016). Three percent was the marginal growth of the sector at the beginning of the year 2013. This was low compared to 2012 end due to the reduced production of oil products and weak international demand for PCs. During this time, the economy of Malaysia had a weak growth of its manufacturing sector which was 4.8 and 5.9 percentages for the years 2016 and 2017 respectively. The rate of growth of the gross output regarding million ringgits for the manufacturing industry has gone up by 7 and nine percentages respectively from 1978 and 2017. These rates of growth indicate that manufacturing sector has positive effects over the years and shows the significance of the industries

towards the national economy (Harun et al., 2017). As Malaysia embark on the journey to become a high income economy, there is a need for a new differentiated approach in SME development to enhance the contribution of SMEs to the economy. For this very reason, the SME Masterplan (2012-2020) was launched in July 2012. The Masterplan revealed four key characteristics of SMEs in Malaysia which include low productivity, lower business formation, small number of firms contributes the most to the economy and high share of informal sector in the economy. These later became the four strategic goals of the SME Masterplan, are: Increase business formation; Expand number of high, growth and innovative firms; Raise productivity; and Intensify formalisation.

1.2.1 Social Media in Malaysia

According to Musa et al., (2016) social media are the common platform adopted by Malaysian organization in marketing and communication activities. Social media utilization is nothing new in Malaysia. Many large Malaysian firms have been utilizing social media as a tool for marketing (Shahizan et al., 2012). Nevertheless, social media utilization among Malaysian SMEs in Malaysia is not that high with only below 20% usage in this whole sector (Shahizan et al., 2012). However, the SMEs are the Malaysian economy's backbone in addition to contributing to the GDP as well as creating job opportunities in the community. Although having advantages for marketing purposes, SME Corporation Malaysia (2014) reported low utilization of social media by Malaysian SMEs at only 12.1%.

Social media is becoming a critical strategic technique for firms. Government and businesses in Malaysia have begun to realize the significance of social media. The

Burson-Marsteller 2015 Asia Pacific Report, documents that companies in Malaysia utilized social media for marketing activities as well as for corporate communications. The finding of the report shows that among the firms in South East Asia, companies in Malaysia, Thailand, and the Philippines have made considerable investments in social media. It was also reported that firms in South Korea, Australia, and Malaysia are proactive in the promotion of their social media channels using their company websites (Slover-Linett and Stoner, 2015). This demonstrates that many Malaysian firms realize the significance of social media and have already engaged in creating a strong social media presence for their companies. However, research on social media still lacks in the area of in-depth examination of different objectives of social media utilization and the consequent effect on firms (Schultz et al., 2012). Thus, to fully understand the full capability of social media, it is essential to examine the different objectives of social media utilization and its effect on firm performance.

Burson, (2015) mentioned that nearly 60 percent of Malaysian companies had integrated social media networks into their websites and approximately 40 have used some social media sharing tools. Malaysia tops the region regarding utilizing social media channels for reading comments made by others regarding their brands, services or products with nearly 94 percent.

1.2.2 Customer Relationship Management in Malaysia

Recently many firms in Malaysia have started to implement CRM. It is due to the realization by many companies that the benefits of the CRM are beneficial in the long-term future of the firms. Also, many organizations have wasted much of their capital expenses regarding not having a proper CRM system in place. As such most MNCs Malaysia has started implementing CRM for quote a long time already. Customer Relationship in many industries ignored during the last many decades in Malaysia. This

has led to the wrong word of mouth and inefficiency of many organizations in Malaysia (Sit et al., 2009). Customer relationship has become the main medium in gaining profits by all kind of business in Malaysia. The economy in Malaysia is growing and leads the retailers and businesses to explore more on how to obtain more attention from customers and getting business profits. Effective Malaysian companies will be those that continue to spend on CRM and shift their efforts from customer acquisition to customer retention. Malaysian companies are more aware of CRM and have a positive view of its market growth (Sulaiman et al. 2014).

Wang et al., (2013) stated that CRM is a management method which allows organizations for identifying, attracting as well as increasing the retention of customers who are profitable as well as managing associations with customers CRM systems have implemented by the many organization cross various industries in Malaysia in the last decade.

1.2.3 Product Innovation in Malaysia

In the era of rapid globalization, innovation is the key to the competitiveness of Malaysia like any other nation focusing on manufacturing sector (Ismail. et al., 2014). At present, Malaysia emphasizes more on investments for the manufacturing industry regarding innovation. The reason for this is because the manufacturing industry has made the highest contribution to the Malaysian real GDP growth (Akmar, 2013). Presently, Malaysia has implemented a new economic model that includes creativity and innovation strategies. The government can undertake many methods to change the economy of Malaysia including industry and process innovation, public and private sector innovation among others. In Malaysia, product innovation is vital for the country to create more superior, higher value-added manufacturing outputs to compete

internationally in line with the recommendation made based on the Malaysia National Innovation Model (National Innovation Council, 2014).

Implementing the 10th Malaysia Plan has caused Malaysia to be extra innovative in a global exhibition with other countries particularly in the manufacturing sector. The government has taken certain initiatives to assist in the development of more innovative measures in this sector (Akmar, 2013). Thus, it is essential that the manufacturing firms understand regarding factors that affect the improvement to offer great innovation and the creativity factors that assist in creating great innovations and describes the moderating factors that affect the profitability growth (Akmar, 2013). Even after the availability of such policies, the percentage of Malaysian manufacturing firms involved in innovation is just 35%. This is much less than the percentage in many developed nations. Some of them are as follows (Shiang and Nagaraj,2013): Ireland- 75%, Germany- 67%, Belgium- 59%, Netherland-55%, Denmark- 53%, Sweden- 48%, and France- 46%.If innovation has a positive impact on organizations, it is of interest to explore the reasons why not every manufacturing organization in Malaysia is engaged in innovative activities. On the other hand, the sector plays a vital role in the economy of Malaysia.

Regarding Mohd, et al., (2014) in Malaysia, research on innovation is still in its Infancy. Malaysia, also, has placed an excellent emphasis on the necessity for invention in every sector of its economy (Ministry of Research, Technology, and Invention, Malaysia (MOSTI, 2014). However, despite calls for greater innovative activities, the amount of invention in Malaysia is still low. Actually, the results of the national survey of research and development (Ministry of Research, Technology and Invention, Malaysia (MOSTI), 2012), indicated the Malaysia's ratio of national gross expenditure on research and development (GERD) to gross domestic product (GDP) was just 0.64 with regards to other countries beneath the East Asian Newly Industrializing Economies (NIEs), such as Korea (2.98), and Singapore (2.36), as well as those of the new emerging economies like China and India (0.84). In fact, the Malaysian manufacturing

industry is at risk of losing its competitive advantage as global competition intensifies with the emergence of low-cost developing countries like China, India, and Vietnam. Although Malaysia has been involved in the semiconductor industry as early as the 1970s, this industry is still focused on low-value activities, assembling and testing (Mohd, 2014). The government in Malaysia has introduced the Economic Transformation Program (ETP) that intends to spur the country's manufacturing growth to reach its Vision 2020. Hence, firms have to innovate if they want to achieve success. Organizations' ability to innovate is normally related to the introduction of new as well as superior products. According to Tung (2012), product innovation increases an organization's leverage in a highly competitive marketplace. Product invention In Malaysia is vital for the country to build up better, higher value-added manufacturing outputs to compete internationally based on the proposals made based the Malaysia National Invention Model (National Invention Council, 2014).

Malaysia has marked itself as one of the fastest growing economies in the major economies of Southeast Asia which enjoyed high growth rates in the manufacturing industry over the past decade which contributes approximately 40 percent of gross domestic product to the country (Keng, Binshan, Pei and Yee, 2012). Although there has been progressing in the manufacturing sector in Malaysia, however, the progress is still considered to be at a moderate level. Given the economic trends involved in globalization and liberalization, the competition between manufacturing companies cannot be avoided; this includes the manufacturing sector in Malaysia (Sidin et al.,2014), Manufacturing companies in Malaysia need to change their way of conducting business by giving more emphasis to higher quality, efficiency, and cost-effectiveness in the production systems and processes. Therefore, there is a need to develop more innovative-driven enterprises in Malaysia to enhance national production competitiveness and resilience. Thus, the manufacturing sector in Malaysia needs to find other alternatives for sustaining its competitiveness, especially among developing countries in the region. This can be done by practicing continuous innovation efforts

through adapting efficient and efficient production processes and developing new products to create demands. Considering the significance of innovation in the performance of SMEs, the current study emphasizes on the SMEs in Malaysia. Malaysia is among the rapidly developing economies globally and mainly represented by SMEs which contribute about 33% to the national GDP. The significance of the growth of SMEs and their sustainability cannot be taken lightly given the Malaysian growth and development economically particularly in this competitive global arena. (Ismail et al., 2014). Innovation is essential for businesses to achieve a sustainable competitive edge, particularly in developing economies including Malaysia where the industrial growth has become an integral aspect of economic development (Ooi et al., 2012). In a hyper-competitive global environment, businesses organizations in the developing nations are more and more funding for innovation, moving away from the past emphasis on cost reduction for success in the long term. Since the manufacturing sector is the main driver for development socially and economically in the developing nations, promoting innovation must be the priority of the developing nations in their economic objectives (Ismail et al., 2014).

1.3 Gaps in the Knowledge Area

Previous studies' literature has shown many gaps in the research regarding product innovation. These knowledge gaps can be summarized as below:

- Smith and Mogos (2013) highlights there are not many researches on the effect of social media on the performance of the organization in various industries such as the manufacturing sector. Hence, there is need to explore the association between social media and business performance in the manufacturing companies. Parveen et al., (2015) have done a research of various usage and impact factors about social media on business performance in large organizations in Malaysia, and also they have

mentioned in further study can be done in different sized organizations, such as small and medium. Research on the elements influencing the social media among SMEs is still lacking (Verheyden and K. Goeman, 2013) and (Syaharizad and Nor Azrin., 2016); also, lack of research on social media by SMEs in Malaysia is the reason for the researcher's curiosity to review more in this region. Given that, it is very important for social media researches, deeper understanding social media factors in SMEs companies.

- According to Mohamad, et al. (2014) there is a need to explore how specific characteristics of CRM on firm performance in both theoretical and empirical investigation. (Siti Hajar, 2013), (Mohamad et al., 2014) and (Madhovi and Dhliwayo, 2017) suggested lack of study in CRM on firm performance to include various firms and sectors including the manufacturing sector. Also, Salojärvi and Sainio (2015) in the further research mentioned there is very little research done in the area assessing the effects of implementation of CRM technology on business performance.
- Idota et al., (2015) suggested the need to identify how social media is utilized for successful product innovation. The number of firms that use social media for product innovation is still too small. Therefore there is need to clarify how social media is used for successful product innovation and success factors need to identify. According to Stock et al., (2013) and Fernandes and Remelhe,(2016) mentioned that in Future research can examine a broader set of customer motivation factors; intrinsic motivation (cognitive or learning benefits, social integrative benefits, personal integrative benefits, hedonic benefit) and extrinsic motivations) effects on the product innovation.

- Amelie, (2013) did in Scandinavian market for the relationship between CRM and product innovation, and this research is limited to a geographical area; it would be exciting to examine similar phenomena based on various geographical areas such as Malaysian manufacturing industries. According to Sjöberg, (2013) and Jaelani, (2016) mentioned in further research that needs to investigate every factor within the topic of CRM, and they suggested explore other components within CRM firms can improve the product innovation.
- Little to no is researched on product innovation as a mediator within Customer relationship management (CRM) and business performance (Ernst et al. 2011). As per (Ernst et al. 2011), in the future studies, these aspects can be addressed and assessed empirically if these and other factors of success of new products mediate the effect of CRM on the performance of the new product. Also, Hui Hu et al., (2015) in the further study suggested that need to investigate the effects of CRM mediate innovation on organizational financial or non-financial performances.
- Mpando and Sandada, (2015), assessing the mediating role of product innovation in the relationship between social media and business performance in the SME sector in an African country. They suggested there is need more investigation on the mediating effect of product innovation on social media and company's outcome in other countries and improved by focusing on a specific sector or industry.
- Löfsten, H., (2014) Suggested the association between innovation of product and performance of the business. Tebogo and Renier, (2016) and Tuan et al.,(2016) have done a research on product innovation and business performance, and they have mentioned in future of studies there is a need to more investigate the relationship between product innovation and organizational performance. However, researches

related to the innovation of product in Malaysia are less and still lacking (Mol and Birkinshaw, 2009; Raymond and St-pierre, 2010, Chandran, 2013, Nasurdi. et al., 2014, Rajapathirana and Hui, 2017). According to Najib, (2011), he studied the relationship between product innovation and business performance in SMEs food processing industry in Indonesia and he mentioned several limitations such as the number of samples and the limited variety of industries. Also, he suggested that more research can be done on the relationship between product innovations and business performance in a variety of industries and with an increased number of samples., also he has mentioned there is a need to the investigation of innovation on business performance such as profitability, share of market as well as growth.

- Patil (2014) and Arman (2014) combined social media and customer relationship management, and they mentioned that more research could be done on combining social media and CRM. According to Arman, (2014) suggested that there is need to explore effective integration factors of Social Media and Customer Relationship Management is the essence of the efficient and effective performance of business. Also Buss and Begorgis, (2015) considerable research has been devoted to the individual areas SM or CRM context, rather less attention has been paid to the combination of the two research areas.

1.4 Problem Statement

Considering that the manufacturing industry is the critical driver for economic development in Malaysia, promoting innovation should be one of the priorities of Malaysia in their economic agenda. It is imperative for manufacturing companies to have a better understanding of the factors that influence enhancement of creativity to

create great innovations and define factors that affect the profitable growth (Akmar, 2013).

Grounded on the research gaps, it is apparent that there is a need to discover and determine the determinants of CRM, Social media on product innovation and business performance that are applicable to Malaysian manufacturing industry. Even though there are many studies on CRM and social media and the relating resultant outcomes, the literature on the exploration of the association between CRM and Social media, product innovation and business performance in the context of the Malaysian manufacturing Industry is still lacking. Here are various studies in the area of social media as well as CRM and its association with product innovation and performance of the business. However, lack of research on the impact of social media and CRM as well as the mediator element's influence (innovation of product) effectiveness on the performance of the business in the manufacturing sector in an integrated way. Hence the problem statement is:

Product innovation is a critical element of sustenance of Malaysia's competitiveness in the period of rapid globalization. However, researches related to the innovation of product in Malaysia are less and still lacking, Despite the importance of Social media and CRM, the dimensions and their synergistic role in ensuring product innovation and organizational performance in Malaysian manufacturing industries are yet to be explored and established.

1.5 Research Questions

For this research there are 7 RQs as follows:

- RQ1. What is the relationship between social media and product innovation in Malaysian manufacturing companies?
- RQ2. What is the relationship of CRM towards product innovation in Malaysian manufacturing companies?
- RQ3. Is product innovation a mediator between social media and business performance in Malaysian manufacturing companies?
- RQ4. To what extent does product innovation mediate the relationship between CRM and business performance in Malaysian manufacturing companies?
- RQ5. How does product innovation influence the business performance of Malaysian manufacturing companies?
- RQ6. Is there any significant relationship between social media and business performance in Malaysian manufacturing companies?
- RQ7. What is the relationship of CRM on business performance in Malaysian Manufacturing Companies?

1.6 Research Objectives

This research has seven main ROs as follows:

1. To assess the relationship between social media and product innovation in Malaysian manufacturing company.
2. To understand the relationship between CRM and product innovation in Malaysian manufacturing company.
3. To discover whether product innovation mediates the relationship between social media and business performance in Malaysian manufacturing company.
4. To find out whether product innovation mediates the relationship between CRM and business performance in Malaysian manufacturing company.
5. To understand the effect of product innovations on business performance in Malaysian manufacturing company.
6. To identify the relationship between social media and business performance in Malaysian manufacturing company.
7. To examine the relationship between CRM and business performance in Malaysian manufacturing company.

1.7 Scope of the Study

The study has focused on the manufacturing industry in Malaysia. There are many factors that affect the growth of manufacturing industry in Malaysia. Manufacturing is an essential sector in Malaysia. Manufacturing industry in Malaysia has undergone rapid growth since the 1970s and has become the market leading to Malaysia's financial development. In the era of rapid globalization, innovation is the key to the competitiveness of Malaysia like any other nation focusing on manufacturing sector (Ismail. et al., 2014). This industry is quite essential to expanding production. The reason being most products are produced in a manufacturing industrial (Harun et al., 2017). For this research, the unit of study is the organization. The aim of this study is to examine the possible impact of Social media and CRM on product innovation and business performance within Malaysian industries.

This research tries to focus on Managers from different functional units working in manufacturing companies. The selected organizations in the sample are manufacturing industry. Samples are selected from seven states (Selangor, Penang, Johor, Sarawak and Negeri Sembilan, Melaka, Pahang) of Malaysia because of heavily populated and rather various manufacturing industry to let the results to be generalized to a larger population. Another reason for the selection of states is because Malaysia's manufacturing organizations are largely concentrated in these states. The majority of manufacturing organizations are established in (Selangor (30%), Penang (13.6%), Johor (12.6%), Sarawak (10.3%), and Negeri Sembilan (7.0%) Melaka (4.6%) Pahang (4.6%) (Percentage Share of Manufacturing Sector by State, 2016). Structural Equation Modeling (SEM) will be used in this research to examine the measurement and structural models simultaneously and also to test the effect of product innovation on social media and CRM and business performance.

1.8 Justification for the Selection of Manufacturing Industry

Manufacturing is a crucial sector in Malaysia. In the recent times, the manufacturing sector in Malaysia grows fast as compared to the previous times. Manufacturing industry plays a vital role in any nation's economic development regarding revenue. The manufacturing industry had given the great opportunity to the Malaysian economy regarding earnings. Because of this, the government is trying its best to ensure that this sector gets innovative as well as competitive (Ismail. et al., 2017). Even though the rate of growth of the gross output in manufacturing sector has risen by 7% and 9% accordingly during the 1978-2017 period, this rate of growth indicating that the manufacturing industry has positive effects over the years and showing the importance industries towards the Malaysian economy (Harun, 2017).

Considering that the manufacturing industry is an integral driver for economic development in Malaysia, promoting innovation should be among the priorities of Malaysia within their economic agenda. It is imperative for manufacturing companies to have better understanding of the factors that influence enhancement of creativity to create great innovations and define factors that affect the profitable growth (Akmar, 2013). Also, it is broadly understood that innovation is crucial to the sustenance of Malaysia's competitiveness in the period of rapid globalization. The percentage of Malaysian manufacturing firms involved in innovation is just 35%. This is much less than the percentage in many developed nations. Some of them are as follows (Shiang and Nagaraj, 2013): Ireland- 75%, Germany- 67%, Belgium- 59%, Netherland- 55%, Denmark- 53%, Sweden- 48%, and France- 46%. However, researches related to the innovation of product in Malaysian are less and still lacking (Mol and Birkinshaw, 2009; Raymond and St-pierre, 2010, Chandran, 2013, Nasurdi. et al., 2014 and Rajapathirana and Hui, 2017).

From another viewpoint, this study is critical as a reference point among other manufacturing firms. This study will also help manufacturing firms to become aware of the significance of being able to be creative and innovative in the workplace. The research findings would also help manufacturing firms to find appropriate factors of social media and CRM in innovation. Finally, manufacturing companies can even inspire to understand to having innovation can bring profits to the company.

1.9 Significance of the Study

This research will contribute to applied knowledge positively for managerial insights, practitioners, and academicians by exploring the impacts the determinants of Social media, CRM on product innovation and business performance Malaysian Manufacturing Industries. The findings of this study will offer two major areas namely theoretical and practical.

1.10 Contributions of the Study

A significant benefit is that the study starts with an essential set of social media, CRM, product innovation and business performance and uses data that are grounded in actual experiences of the manufacturing industry in Malaysia. This study should help clarify for managers the social media, CRM, product innovation that affect company's performance. Establishing a model of social media, CRM, product innovation and business performance in the industry of interest should help managers better understand how social media, CRM factors, product innovation fit together into a total strategy. In general, this study will have two main contributions regarding theoretical as well as practical contributions.

1.10.1 Theoretical Significance

- According to Patil (2014) researched that combined social media and customer relationship management and they mentioned that more research could be done on combining social media and CRM. According to Arman (2014), exploring the integrative elements of social media and CRM is essential in creating an effective and efficient business performance. Also, Buss and Begorgis, (2015) Studies have been dedicated to the areas of individual SM and CRM, but less focus has been placed on the joint research of these two areas. Thus, this study aims to fill the research gap by combining these research areas of SM and CRM which have mainly been studied independently in the past. Thus, the aim of this research is to find out how firms use SM and CRM. Therefore, in this study investigated the combination of SM and CRM in Malaysian context.
- The previous study has done the effect of different factors social media on business performance (Lovejoy and Saxton, 2012, Parveen et al., 2015), Parveen et al., (2015) have done a research of various usage and impact factors in relation to social media on business performance in large organizations in Malaysia, and also they have mentioned in further study can be done in different sized organizations, such as small and medium. Smith and Mogos (2013) highlights there are not many researches on the effect of social media on the performance of the organization in various industries such as the manufacturing sector. Hence, there is need to explore the association among social media as well as performance of business in the manufacturing firms. Research on the factors influencing the social media among SMEs is still lacking (Verheyden and K. Goeman, 2013); and (Syaharizad and Nor Azrin., 2016) also, lack of research on social media by SMEs in Malaysia is the purpose of the researcher's interest to study more in this area. Given that, it is crucial for social media researchers,

deeper understanding social media factors in SMEs companies. According to Parveen, (2015) investigated the factors that influence the social media and its subsequent impact on organizations performance. Also, he mentioned the impact of social media on organizational performance had not been empirically investigated. Therefore this study provided the relationship between social media on business performance.

- Several studies have been undertaken in the context of CRM and its impact on firm performance. The mixed results could be due to insufficient understanding of the relationship between CRM and firm performance (Ernst et al., 2011; Reimann, Schilke, and Thomas, 2010). According to Mohamad, et al. (2014) mentioned that there is a need to explore the specific characteristics of CRM on firm performance in both theoretical and empirical investigation. Siti Hajar, (2013), Mohamad et al. (2014) and Madhovi and Dhliwayo, (2017) suggested lack of study in CRM on firm performance to include various firms and sectors including the manufacturing sector. Also, Salojärvi and Sainio (2015) in further research mentioned there is research scarcity in the area of evaluating the impact of CRM technology implementation on the performance of business. Need to realize the importance of implementation of CRM systems on the financial and business aspects such as overall profitability. Therefore, this study investigated this relationship and found support for the effect of CRM and business performance.
- Artz et al. (2010) conducted the effect of product innovations on the performance of firms in various sectors in the US and Canada, and he suggested it can be done in different country. Tebogo and Renier, (2016) and Tuan et al., (2016) have done a research on product innovation and business performance, and they have mentioned in future of study, there is need to investigate the relationship between

product innovation and organizational performance. Also, Löfsten, H., (2014) Suggested the association between innovation of product and performance of the business. However, researches related to the innovation of product on business performance in Malaysia are less and still lacking (Mol and Birkinshaw, 2009; Raymond and St-pierre, 2010, Chandran, 2013, Nasurdi. et al., 2014, Rajapathirana and Hui, 2017). According to Najib, (2011), a study was carried out on the link between business performance and product innovation in the Indonesian SME food processing sector; however, certain limitations were faced such as the limited sample size and the limited variations in the sectors. Also, he suggested that more research can be done on the relationship between product innovations on business performance in a variety of industries such as manufacturing; also he has mentioned there is a need to the investigation of innovation on business performance such as profitability, share of market as well as growth. Therefore, the present study examined the relationship since there is lack of researches' which explores the relationship between product innovation and business performance in Malaysia.

- Present research contributes to CRM literature by empirically investigating the mediating effect of product innovation. In many studies on CRM only examined the direct impact of some variables on the product innovation and business performance as a result. Therefore, the mediating effect of product innovation relationships between CRM and business performance is still lacking. Ernst et al. (2011), Little to no is done research on product innovation as mediator within Customer relationship management (CRM) and business performance and he has mentioned in the future studies these aspects can be addressed and assessed empirically if these and other factors of success of new products mediate the effect of CRM on the performance of the new product. Also, Hui Hu et al., (2015) in further study suggested that need to investigate the effects of CRM mediate innovation on organizational financial or non-financial

performances. So this research bridge this gap by supporting the mediating effect of product innovation between factors of CRM such as information sharing, customer involvement, long-term partnership, joint problem solving, technology-based CRM and business performance.

- Chapter one had highlighted the lack of study of product innovation in the Malaysian manufacturing industries. Most of the previous researches on social media examined the direct effect of product innovation and business performance. Also Mpando and Sandada, (2015), assessing the mediating role of innovation in the relationship between social media and business performance in the SME sector in African country. They suggested there is need more investigation on the mediating effect of product innovation on social media and company's outcome in other countries and improved by focusing on a specific sector or industry. The result of this research confirmed the mediating product innovation, social media factors, and business performance. It approved the mediation product innovation in the relationship between social media factors and business performance in Malaysian manufacturing companies.
- In line with previous studies, there was limited research that considered social media on product innovation. Due to the Idota et al., (2015) suggested need to identify how social media is used for successful product innovation. The number of firms that use social media for product innovation is still too small to clarify how social media is used for successful product innovation and success factors need to identify. According to Stock et al., (2013) mentioned that in Future research can examine a broader set of customer motivation factors (intrinsic motivation and extrinsic motivations) effects on the product innovation. This study proposed three elements of social media, which are important, such as customer motivation, customer collaboration and electronic word of mouth.

- Amelie, (2013) did in Scandinavian market for the relationship between CRM and product innovation, and highlighted this study is based on a limited geographical boundary; it might be beneficial to examine the same phenomena on various other geographical areas. According to Sjöberg, Amelie (2013) this study has not examined each factor in the CRM field, and it is recommended that examining other aspects of the CRM companies could enhance the area of product innovation. Therefore, this research investigated relationship and found support for the effect of information sharing, customer involvement, long-term relationship, Joint problem solving and CRM based on technology and business performance on product innovation. Also, Jaelani, (2016) mentioned in further research that needs to investigate the factors within the topic of CRM and he suggested explore other components within CRM firms can improve the product innovation.
- This research is the construction of a theoretically based model which assimilates the determinants of CRM, social media, product innovation and business performance. This study offers the establishment of a relationship between the suggested variables in the structural model of determinants social media, CRM effective product innovation and business performance for Malaysian manufacturing organizations. However, researches related to the innovation of product in Malaysia are less and still lacking (Mol and Birkinshaw, 2009; Raymond and St-pierre, 2010, Chandran, 2013, Nasurdi. et al., 2014, Rajapathirana and Hui, 2017) Also this research has considerable significance in Malaysian manufacturing companies. This study establishes a research model which explains different CRM determinants (information sharing, customer involvement, long-term partnership, joint problem solving and technology-based CRM) have different relationships with determinants variables product innovation and business performance and social media (customer motivation, customer collaboration, and EWOM) with determinants variables

product innovation and business performance. The results and findings of this study will have considerable benefits for academicians in assessing the present state of Social media and CRM and product innovation and their effects in relating its concepts within the background of Malaysian manufacturing industry. Also, all the selected variables in this research tested in Scandinavian and developing countries and hadn't tested in Malaysia.

1.10.2 Practical Contributions

Product innovation in Malaysia is essential for the nation to develop a more superior and higher valued manufacturing products that can compete on a global scale in alignment with recommendations by the Malaysian National Innovation Model (National Innovation Council, 2014). SMEs in Malaysia still face many obstacles in the area product innovation despite the numerous supports from the government. At present, Malaysia has placed more emphasis on funding for product innovation for the manufacturing industry. In this regard, this research suggested some practical insights to the management of the organization in effecting of product innovation and increases the performance of the organization. Also, this study will encourage manufacturing industries to adopt product innovation to build the right organizational performance in the marketplace.

The Economic Transformation Program (ETP) was introduced by the government to spur the country's manufacturing sector in line to attain Vision 2020. Therefore, firms have been forced to innovate if they wish to achieve success. The ability to innovate is the main factor for enhancing organizational performance and ensuring success. Thus, it is essential for manufacturing firms to understand better the factors that affect creativity development so that they can be innovative and realize the aspects of creativity which could assist them in developing great innovative products

and clarify the moderating determinants of profitable growth (Akmar, 2013). Therefore this study identified the determinant of social media, CRM and product innovation in this research would help to achieve business performance.

The proposed research model of this study is effective for the practitioners and managers to evaluate the relationships between different social media and CRM determinant, product innovation and business performance experienced by organizations. Because this research model includes an analysis of three independent determinants of social media (customer motivation, customer collaboration, and EWOM) and five independent determinants of CRM in relation to product innovation and business performance, the practitioners and managers can gain insight into the positive and negative influences of social media and CRM on product innovation and business performance by manufacturing companies in Malaysia. Also, this study will also help managers in manufacturing companies to be aware of the importance of being creative and innovative in the workplace. Finally, manufacturing companies can also inspire to understand to having innovation can bring profits to the company. The findings provide managers and practitioners to recognize and develop appropriate implementation for social media and CRM to improve product innovation experienced by manufacturing companies in Malaysia.

This research identifies the determinants and proposes a model for social media, CRM, product innovation and business performance. It can be surmised that the findings and outcomes of this study will benefit SMEs and MNCs in their run toward improving their activities. The proposed model will help managers by offering them a long-term strategy guide since the detailed findings will highlight particular criteria for implementation to enhance firms' capabilities for enhanced performance as well as survival. Therefore this study a mixed of determinants effective the product innovation was not identified in Malaysian organizations.

The other contribution to this study is that combined social media and customer relationship management. This study offers a systematic research design supported by the theoretical framework to combine Social media and CRM and impact on product innovation which ultimately affects business performance. Based on the provided literature, this research would help to identify the proper determinants of social media and also CRM of manufacturing industry in Malaysia.

The last contribution is that scholars have acknowledged in previous research as the foundation for product innovation (Artz, 2010, Therrien, et al., 2011, Tung, 2012, Hoonsopon and Ruenron 2012, Kotler and Keller, 2012, Rosli and Sidek 2013, Camison and Lopez, 2014). Also, no study has done the mixed of determinants effects on product innovation in a model. Therefore this study offers clarification by conceptualizing the relationships among the social media, CRM on product innovation and business performance.

1.11 Definition of Terms

The main terminologies used in this research and their definition are as follows: In a short while, the major concepts of this study will be presented. This includes social media, CRM, business performance as well as product innovation.

1.11.1 Social Media

The evolution of the social media via the sites of social networking, video sharing sites and that of photo sharing and blogs made users who are more than just information consumers, rather creators. The web is a platform which allows experts as

well as everyday people for publishing their opinions to anyone who can be the audience. Also, most of these publisher's acts influence the thought processes and acts of the consumers. Statistics show that nearly 77 percent active web users read blogs. Firms can also be in touch with the influencers of social media for carrying their messages and for promoting their services and products. Application of the social media can be of many modes. Certain examples are blogs, communities with content such as YouTube and social networking websites such as Facebook (Kaplan and Haenlein, 2010).

All of these platforms give power to the users for the creation and exchange of content as well as for interaction with them. Vernuccio, (2014) did a study to explore the reasons behind youngster's usage of social media. It was found in the studies that social networking sites such as Facebook are considered by youth as the most prominent sites for social connectivity. Themes that motivated people for the use of social media were found in the studies. The prominent themes found were- curiosity regarding others, communication which is convenient, formation of relationship and reinforcement. In the world of network, the firm's awareness of the different opportunities given by social media is crucial when striving for collaboration which is successful with their customers (Kaplan and Haenlein, 2010).

Using social media has an advantage of having access worldwide. It is a mode of cheap communication as well as fast communication between users. Many firms across the globe use social media as a base for their interaction with their customers to co-create value. Social media's highly interactive nature gives a better chance for enhancing the success of collaboration between the buyers and sellers. This is because of the conventional manner provided by the social media for the sellers to the buyers (Sashi, 2012; Rohrbeck et al., 2010). As such, many firms implement the suggestions collected from the collaboration with their customers via social media, and they structure their

products and services for better corresponding to the needs and demands of the customers (Helms, 2012).

1.11.2 Customer Relationship Management

In the last decade, many firms and businesses have used CRM systems (Daramola and Adekunle 2013) Almost all sorts of businesses irrespective of their nature try to nurture this aspect as customers are the ones who are responsible for the sustenance of any business. Mohamad et al., (2014) it is stated that CRM is a comprehensive process and strategy that allows a firm to identify, acquire, retain, and nurture profitable customers. Furthermore, CRM is a core process in the organization which emphasizes setting up, maintaining, and improving long-term links with customers as supported in the area of relationship marketing. Many SMEs and MNCs use CRM for enhancing their internal operations as well as for collaboration their customers (Nguyen, 2012). Long et al. (2013) argued that CRM is a business strategy which is customer focused and aimed at enhanced customer satisfaction and loyalty via offering services to every customer. With business applications moving to web platforms, CRM has enhanced a firm's capability via giving access to its customers as well as suppliers through online media.

1.11.3 Product Innovation

Varis, (2010). Defined as the ideas, information, and thoughts the firm gets from its customers these insights can be regarding the present services or products offered, trends in the current time or potential trends in future, future needs and ideas. Ideas for innovative product or service development are most likely to be available for the end

users of the specific products or services, and it is less likely to be developed from within the firm (Artz, 2010)

Rosli and Sidek (2013) Innovation is defined as a new product or service in the market that is commercialized, which reveals new consumers or users and their communities. Hoonsopon and Ruenron (2012) defined innovation as creating a new product which will bring in a completely different value to the market compared to the existing products. They defined product innovation as a company tool for having efficient market performance, and it is target on the satisfaction of targeted customers' apparent as well as hidden desires. Product innovation can turn out to be a competitive edge for firms with innovative, high-quality products which would then lead to organization efficacy and reach a stage of the firm competition (Camison and Lopez, 2014). Kotler and Keller,(2012)defined innovation as an idea, a technology or a product which was put into production or which was brought out of the market, which customer considers as a completely new one or having unique aspects or features. Carlson and (Therrien et al., (2011)defined innovation as the process which turns an idea into value for the customer as well as results in sustainable profit for the organization.

1.11.4 Business Performance

Business performance concepts are usually centre on the aspects of effectiveness as well as efficiency. Business performance is referred to like the performance of a business which is measured using essential elements. Business performance is defined as the efficiency with which the organization transforms the existing inputs into outputs (Brocke and Rosemann 2010). As businesses have to be successful eventually for surviving, some financial efficiency is needed. This includes aspects of gross margins, net margins, return on investments, relative profitability and so on. Sulaiman et al., (2010) measured business performance by profit rate and growth of sales. Chung et al.,

(2012) Suggested that Business performance relates to the rate of customer retention, rate of success of new products, sales growth, return on investment, and overall firm performance compared to others. Business performance is operationalized as three measures composite with sales volume, market share, and profitability. The operational measurements of those performances are associated with the success as well as profitability of services and products, portfolios and product groups, output and productivity, etc. Rosenbusch et al. (2011) measured business performance of businesses by their capacity for making profits as well as based on their sales growth.

1.12 Organization of the Thesis

This study consists of 5 chapters. The organization of each chapter is presented in Figure 1.1.

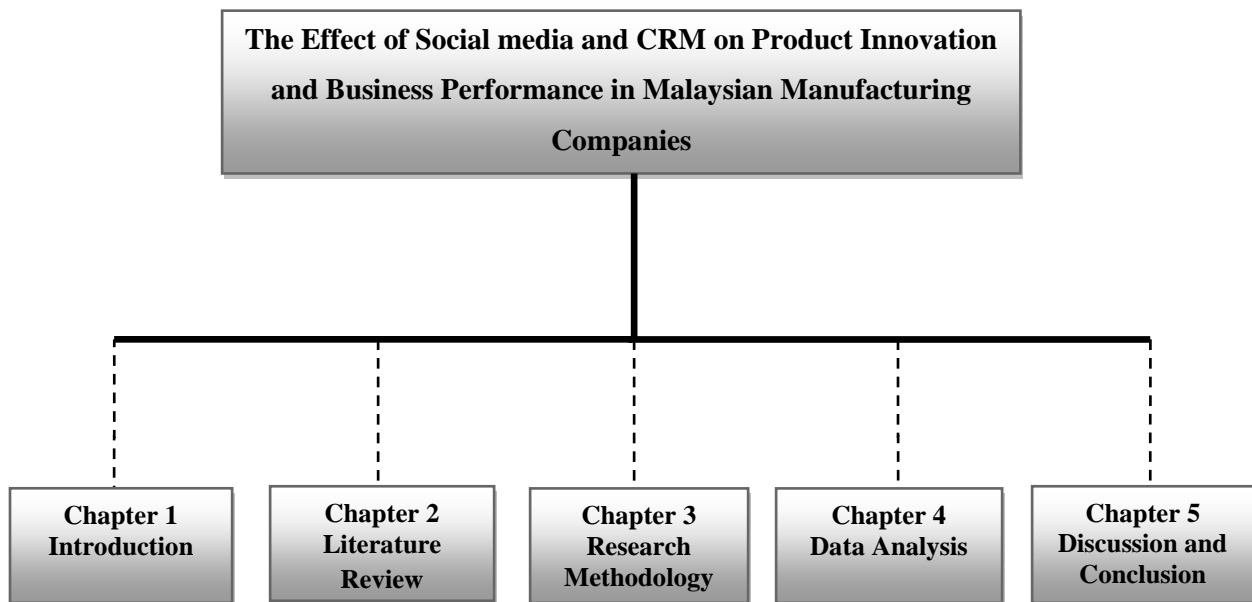


Figure 1.1 Organization of the Thesis

Chapter 1: Introduction

This chapter gives an outline of the background of the study, Research problem, RQs, and ROs, as well as research gap, is discussed in this chapter. The justification for the research and selecting the industry as well as the scope of the study is outlined here.

Chapter 2: Literature Review

This chapter introduces the concepts of social media, Customer Relationship Management, innovation of product and performance of business. The relationship between social media and CRM on product innovation and performance of business is discussed here. This chapter is based on the offline and online resources which include journals and articles. In-depth literature reviews that lead to the design of conceptual framework as per the use, as well as a gratification of the theory, the theory of social exchange as well as resource-based view and theory of CRM, are discussed in this chapter.

Chapter 3: Research Methodology

This chapter outlines the research paradigm, mentioned regarding the survey tool, procedure of sampling, collection of data followed by developed hypotheses as well as operational definition of the constructs. The framework of the research will be outlined here.

Chapter 4: Data Analysis and Results

This chapter will begin with the descriptive statistics, which will be followed by the analysis of exploratory and confirmatory factor. Structural equation modeling (SEM) will outline the use of analysis of data. The outcome of different hypotheses will be mentioned in this chapter. Issues of the study and ROs will be discussed here. This chapter is subdivided into three sections. They are results, outcomes and findings' discussion.

Chapter 5: Discussion and Conclusion

This chapter highlights the discussion as well as conclusion of the findings of the research with some recommendations provided for future study. Limitations of the study will also be discussed in this chapter.

1.13 Chapter Summary

This chapter outlines the introduction, study's background, and statement of problem, Research questions, Research objectives, knowledge gap and justification for the selection of manufacturing sector in Malaysia, importance of theory, definition of key concepts and the organization of the study. Based on the given basis, the below chapter would explain the elements, the associated literature and the associated studies which have been done by other scholars.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The aim of this chapter is to review the associated literature too theoretical as well as research perspectives of the CRM aspects and social media which are likely to have an impact on product innovation and business performance. A review of the literature on the categorization of social media and CRM are also performed. This chapter outlines the definition of social media and CRM. Later, social media and CRM in Malaysia's manufacturing sector will be discussed. The independent variable is discussed after this, followed by definition of product innovation and business performance. The discussion will focus on the various aspects of performance of business including the volume of sales, profitability as well as the market share. Various dimensions of CRM are discussed following this. This includes sharing of information, the involvement of customers, long-term relationship, Joint problem solving and CRM based on technology. The effect of these on the performance of business is discussed later. The impact of various aspects of social media such as the motivation of customer, collaboration of customers and electronic word of mouth on product innovation and performance of business are discussed as well in this chapter.

2.2 History of Social Media

Internet was founded by a set of scholars commissioned by the US Government in 1969. The main aim was to have a continuous base for communication. The web they created gave access without location dependency, communication channels accessible at any given time, and a network for interaction. This interaction enables networking for

people and groups, mainly via social media (Fawkes 2010). There are numerous mainstream platform styles as well as which embodies social media. There are collaborative websites, blogs as well as communities of content including social networking sites. Collaborations such as Wikipedia enable web users for updating as well as posting and revising information on the site pages. Blogs which indicates the earliest social media form allows users to write and displaying information regarding personal subjects of interest where comments, as well as communication from others, are encouraged. Communities of content such as YouTube are websites where people can upload videos or images instantly. At last large social networking websites such as FaceBook are the ones for self-disclosure as well as interaction via the profiles of individuals and updates of the same (Kaplan 2010). In the year 2014, Facebook already had over 1.15 billion users (Osborne and Dredze 2014). Twitter has more than 500 million users' million users by 2014. 85 percent believe that the company should not just present but also should interact with the customers using social media as well as 56 percent of the users feel both powerful connection with and served by the organizations in a better way, when they have an opportunity for interacting with them in the environment of social media (Treem et al., 2012). The period 1997-2014 saw some such small and big social networking sites coming into the scene. They all allowed people customization regarding individual profiles and friend's connections. From the year 2001, there has been a main advancement in the field of social media every year, and the frequency rose in 2014. In the year 2009, FaceBook was recognized as the most widely used social networking site across the globe. Facebook has over a billion users by now (Curtis, 2014).

2.2.1 Social Media in Organizations

Social media has altered the relationship between customers and organizations. Now customers feel more connected to the organizational activities. Social media

creation happens via web communication tools which act as conduits for the exchange of the user's personal or professional information as well as ideas (Romero and Molina, 2011). Social media has a great influence on the way global businesses evolve as well as manage their products. Organizations are also using social media for carrying their messages or to promote their products or services (Hanna et al., 2011). For firms, social media is mainly perceived as an increasingly important marketing and communication channel, which not only impacts the reputation of a firm, but also its sales and profit (Kietzmann et al., 2011; Parent, Plangger and Bal, 2011; Vernuccio, 2014). In the world of network, the awareness of the firms of the different opportunities given by social media is necessary when striving for successful relationship with their customers (Kaplan and Haenlein, 2010). Using social media can give access to global scenarios, and it's a mode of fast, easy and cheaper communication. This is the same reason why many organizations across the globe are using social media channels in their process of value co-creation with their customers. The virtual worlds of internet are used to collaborate with customers to collectively profit from the process of creativity and innovation (Helms et al., 2012). As many such firms incorporate the opinions collected from the integration with their customers using social media channels and develop their products or services for corresponding better to the desires and needs of their customers. SMEs and MNCs use social media for enhancing their internal operations as well as to collaborate in new means with their customers and other stakeholders. The value of the use of social media channels in businesses comes from the how and what type of information shared on the social media channels (Culnan et al., 2010). By making use of social media channels, organizations can reach a larger set of audience as well as can interact with their customers in a way which is less expensive (Rohrbeck et al., 2010). Also, integration of customer virtually improves the speed as well as persistence of the involvement of customers (Rohrbeck et al., 2010). As per Bhalla, (2010) with the evolution of social media channels, the interaction between customers and the manufacturers has increased and enhanced. Contemporary customers prefer to get involved in the process of product development by co-creating value with the manufacturers, which better satisfies their needs. Social media channels have used in the

business world as a means of communication in marketing. Many marketers are utilizing such channels to reach out to the potential customers and to maintain the relationship with existing customers (Michaelidou et al. 2011). As per Williams (2011); many firms have started using social intranets. The social intranet can be defined as the use of social media tools. Treem et al., (2012) has mentioned that social media usage can enhance internal and external communication of organizations. This study focuses on the influence made by social media channels on the performance of business and the need to do so by organizations (Kaplan and Haenlein, 2010). Kaplan and Haenlein (2010) defined social media as a set of web-based applications which is made on top of the technology as well as ideological base of Web 2.0, which enables the creation and exchange of contents generated by the users. Web 2.0 technologies on the Social Web allow conversation in two ways. Customers enable businesses to listen to them and respond accordingly (Fournier and Avery, 2011). Customers, as well as organizations, are increasingly utilizing the opportunities of social media channels for collaborating, discussing and sharing (Jones, 2010). Social media gives plenty of room on web. The diversity of options is social media channels at times makes it difficult for the organization to use them. For instance, the following are some of the common forms of social media channels: Microblogs, corporate blogs, Social networking sites such as Facebook and Twitter, Video sharing sites, Podcasts, Web discussion portals, etc.

Social media, especially the networking sites are emerging as a powerful online platform. (Jones, 2010). Social media channels are not being used by MNCs but also by various SMEs across the globe (Kaplan and Haenlein, 2010). Customers comment and engage in such social media platforms as Facebook and Twitter which makes them attractive to organizations for being in constant touch with their customers and potential target market (Reyneke, Pitt, and Berthon, 2011).

2.2.2 Social Media by Organizations in Malaysia

According to Musa et al., (2016) social media are the common platform adopted by Malaysian organization in marketing and communication activities. Social media utilization is nothing new in Malaysia. Many large Malaysian firms have been utilizing social media as a tool for marketing (Shahizan et al., 2012; Musa et al., 2016). Nevertheless, social media utilization among Malaysian SMEs in Malaysia is not that high with only below 20% usage in this whole sector. However, the SMEs are the Malaysian economy's backbone in addition to contributing to the GDP as well as creating job opportunities in the community. Although having advantages for marketing reasons, SME Company Malaysia (2014) reported low use of social media by Malaysian SMEs at only 12.1%. Research on the factors influencing the usage of social media among SMEs is still in its early stages (Razak and Latip, 2016).

Social media is becoming a critical strategic technique for firms. Government and businesses in Malaysia have begun to realize the significance of social media. The Burson-Marsteller 2011 Asia Pacific Report, documents that firms in Malaysia utilized social media for marketing activities as well as for corporate communications. The finding of the report shows that among the firms in South East Asia, firms in Malaysia, Thailand, and the Philippines have made huge investments in social media. It was also reported that firms in South Korea, Australia, and Malaysia are proactive in the promotion of their social media channels using their company websites (Slover-Linett and Stoner, 2011). This demonstrates that many Malaysian firms realize the significance of social media and have already engaged in creating a strong social media presence for their companies. However, research on social media still lacks in the area of in-depth examination of different objectives of social media utilization and the consequent effect on firms (Schultz et al., 2012). Thus, to fully understand the full capability of social

media, it is essential to examine the different objectives of social media utilization and its effect on firm performance.

2.3 Social Media Definition

Williams (2011) defined social media as a set of web applications which gives an in-depth interaction among web users via the content generated by the users themselves. This content can be highly diverse. It usually includes texts, documents such as photos or videos. Palmer characterized social media as web applications, a media or platform which is targeted in facilitating interactions, collaborations as well as the sharing of content and the significance of social media lies within the customer-community interactions (Rodriguez et al. 2012) defined a social media as a set of tools or software as well as web applications which ensures the growth of relations among individuals, as well as customized set of web tools, where people are identified by name. Smits, (2013) found that social media is a new phase in the development of the enhanced use of web for the practices of business marketing. As such, social media will be of more interest for the marketing activities of organizations (Kaplan and Haenlein, 2010). Via social media, much online communication takes place where individuals, as well as organizations, can generate as well as share the content generated (Chan et al., 2010). Social media allows organizations to involve their customers in a timely as well as direct way in a cheaper ways and increased levels of efficiency as compared to the conventional tools for communication. As such social media become the most appropriate mode for MNCs as well as SMEs to reach out to their customers (Kaplan and Haenlein, 2010). Social networking sites such as Facebook and Twitter engage their users to follow their friends or favorite brands and comment or question the posts of the pages. Managers of organizations can connect well with their customers through such social networking sites, by knowing what customers or market is taking regarding their brand and competitors and so on (Reyneke, Pitt and Berthon, 2011). Social media is

defined as the Web 2.0 extension as well as the concepts of user-generated content (Brennan and Schafer, 2010; Lievrow, 2011). As such social media channels can be said as interactive as well as dynamic which generates user-generated content electronically which aids knowledge and information democratization as well as enables the general users to change from being consumers of content to producers of content (Brennan and Schafer, 2010). This research concentrates on the aspects of social media; the framework of theory is as follows: customer motivation, customer collaboration, and EWOM.

2.3.1 Customer Motivation

According to Füller (2010), today's customers are a source of innovation that is valuable and their productive and proactive functions are being taken into keen consideration compared to the past firm-controlled era. However, the needs and opinions of customers are complicated and based on various motivations. Since organizations often find it difficult to meet customers' expectations and requirement properly, it is essential to examine their initial motive involved in online communities. Based on the research by Hoyer et al. (2010), it has been found that particular motivations for the participation of consumers in the virtual communities and new products are not yet fully understood. To encourage customers to engage in the co-creation procedure, businesses mainly require discovering what clients expect from co-creation and how customers' motivations and personalities impact those expectations (Füller, 2010). Yüller (2010) stresses the fact that firms need to understand what persons expect from virtual co-creation, as customers are only willing to discuss their creative suggestions, honestly state their product preferences, and spend vital amounts of time changing accessible product ideas if their expectations are met. If these expectations cannot become met, co-creation can rapidly fall and, in the case of businesses that greatly rely on client participation, not achieving client Expectations can lead to failure (O'Hern and Rindfleisch, 2010). Expectations may differ depending on the kind of product and

advancement task, the degree of participation, expected bonuses (monetary/ non-monetary) or the desire to fulfill and socialize with like-minded customers (Nüller, 2010) . As motivations influence these goals, Yüller (2010) known as a self-determination theory to check out the inbuilt and extrinsic inspiration of customers to employ in discretion actions which digital co-creation can end up being regarded. As Clients inspiration is certainly regarded inbuilt if activity is normally respected for its very own benefit; extrinsic if they concentrate on potential final results is certainly separated from the activity itself (Yüller, 2010). Many clients are motivated by a mixture of intrinsic (fun and altruism), internalized extrinsic purposes (learning, popularity) and completely extrinsic motivation (payment, profession potential clients) (Füller, 2010). Hoyer et al. (2010), who see the inspiration of customers as an antecedent of the level of co-creation, differentiate four types of inspiration: economic, public, specialized, and emotional. Hoyer et al. (2010) obviously state that transported out investigates when customers are motivated to become included and appreciate co-creation.

Motives inducing individuals to engage in innovation are very rich and nuanced. Often, they are grouped into the two broad categories of extrinsic or intrinsic motivation to perform tasks or engage in activities (Stock et al., 2013). Extrinsic motivated individuals act with the intention of obtaining a desired consequence or avoiding an undesired one, so they are energized into action only when the action is instrumental to those ends. With this description, benefits linked to the result created the invention being utilized are extrinsic motivators. Intrinsic inspiration involves people carrying out a task because they think it is interesting and derive spontaneous fulfillment from experience itself (Stockta al., 2013). However, customers are also motivated to innovate because they benefit from the development circumstance and derive subjective well-getting from it (Raasch and von Hippel, 2013). Extrinsic motives documented include anticipated reciprocity, social reputation (Bin, 2013), financial benefits and the building of cultural interactions via participation (Franke and Schreier, 2010; Franke, Schreier, and Kaiser, 2010). Consumer innovation research, also, has found a variety of

intrinsic motives to innovate. Included in these are pleasure of the innovation development (Pongtanalert, 2011; von Hippel, et al, 2012), learning/skill improvement (Bin, 2013) and assisting others. The extrinsic motives asked approximately; using the result and selling the output to others. Intrinsic motivations asked about pleasure from creating the invention, assisting others and learning from the procedure of creating the invention. These studies discovered that extrinsic and intrinsic motives (Kuusisto et al., 2013; Hienerth, von Hippel, and Jensen, 2014).

Reichwald and Piller (2005) distinguish extrinsic, intrinsic and social motivational factors. When customers are motivated by the outcome of their participation effort, the motivation is extrinsic. This involves the expectation of using the innovation which then fulfills the customer's needs better, more accurately, or faster, while the costs between firm and customer are reduced (Bogers et al., 2010). Participants receive through social media in online communities is a motivating factor and encourages them to participate in online communities of innovation. This can be a cost-efficient way of new product development for businesses by encouraging consumers to participate in online communities related to innovation (Paulini et al. 2014).

Study stream providing important information for this study explores the motives for engagement of individual users or customers into innovation process as co-creators for products (Lau et al., 2010). In the context of co-creation as the extent to which producers involve their consumers during the development of new products (Carbonell et al., 2009), customers are largely driven by extrinsic motives, ranging from expected reciprocation and social recognition to product-related benefits and rewards (Ogawa and Pongtanalert, 2013; Yim et al., 2012). Further studies revealed that intrinsic motives, such as fun, curiosity, and learning/skill development also matter in this co-creation (Füller et al., 2010; Nambisan and Baron, 2010). This study develops four

categories of intrinsic motivation and extrinsic motivation drawn from the literature and modified to understand better the motivation to participate in online collective product innovation:

2.3.1.1 Intrinsic Motivation

Intrinsic motivation is defined as an inside feeling of a person in association to be motivated to a specific action. Ke and Zhang. (2010) defined the same as performing an activity for its inherent satisfactions instead of certain separable outcome. When intrinsically motivated an individual is shifted for performing for the fun or challenge entailed instead due to external pods, pressures or rewards. What gets out of this is that intrinsic motivation pertains within a person. Anyhow a motivation that one person has for a specific action might not necessarily be a motivation for another one. Apart from this, Nov., (2010) as stated that next to existing in a person, an intrinsic motivation also exists as a link between the person and the action. In the co-creation context, this can be associated to whether someone finds an act interesting or not. An individual who is interested in a specific task via its psychological requirements is intrinsically motivated for that act. What can be derived from this is that in such scenarios, organizations have to foster that intrinsic motivation of their customers wherever applicable (Dvorak 2013).

2.3.1.1.1 Cognitive or Learning Benefits

Cognitive or benefits of learning refers to the product based learning. Via co-creation, customers gain knowledge as well as information regarding the products, their uses and prevailing technologies (Dvorak 2013). This cognitive benefit is a crucial motivation which drives customers who are knowledge craving and for sharing their ideas with the organization (Dvorak 2013). Regarding the literature, many consumers

are inquisitive and willing to expand their knowledge. Those customers might be more willing to share their knowledge with companies if they acquire new information and can enhance their knowledge and expertise (Hoyer et al., 2010; Nambisan and Baron, 2007).

2.3.1.1.2 Social Integrative Benefits

Social integrative gains customers might be motivated for participating via receiving certain type of recognition (Hoyer et al., 2010). For instance, a title that possibly improves their status, Amazon is an example which awarded the Top 100 reviewers which created a feel of uniqueness for the receivers. Also, social as well as relational networks including the social gains could also concrete a customer's willingness for interacting as well as exchanging with other customers or organizations. Because of the highly interactive nature of co-creation, customers are able for developing relationships with other customers or the organization (Hoyer et al., 2010).

Customers who seek social benefits are motivated by enhanced reputation, social esteem, and strengthened ties with like-minded customers (Nambisan and Baron, 2010).

2.3.1.1.3 Personal Integrative Benefits

Personal integrative gains can be in the form of improved credibility, status as well as confidence (Nambisan and Baron, 2010). Customers might give value for the enhanced status as an outcome of the contribution of their knowledge to the process of innovation of an organization in the creation of a new product or enhance a prevailing idea (Nambisan and Baron, 2010).

2.3.1.1.4 Hedonic Benefit

Benefits which are hedonic include joy and entertainment as impacting involvement in activities of co-creation. Customers might consider their involvement in the process of co-creation as an experience that is mentally stimulating, something of excitement, entertainment and interesting (Nambisan and Baron, 2010). Interaction with other users or organizations regarding products or services and collaborating with them very closely might be a great experience as well as exciting by the customers. This gain is regarded to be perceived by the customers, and it very well motivates them to involve in the co-creation process. In comparison, hedonic user reasons are intrinsic, referring to the aesthetic, experiential and enjoyment related benefits related to the process of developing the development (Raasch and von Hippel, 2013; Chitturi et al., 2008).

2.3.1.2 Extrinsic Motivations

Extrinsic motivation is the opposite of intrinsic motivation. The definition by Ophof, (2013) on extrinsic motivation is about extrinsic motivation being a construct that pertains whenever an activity is done to attain some separable outcome. Extrinsic motivation thus contrasts with intrinsic motivation, which refers to doing an activity simply for the enjoyment of the activity itself, rather than its instrumental value. Ophof, (2013) relate this to the degree of autonomy of extrinsic motivation. About co-creation, a person can be extrinsically motivated when engaging in a successful co-creation activity network marketing leads to an economic reward, so long as isn't just powered by the curiosity in the duty. That separable final result in this research an incentive from the exterior environment, namely an economic reward (Ophof 2013).The extrinsic motivations are centered on the outcomes that your customer benefits from being energetic in co-creation. These benefits are things such as bonuses or position enhancement obtained during or after such a task. Appropriate benefits for taking part in

co-creation will encourage currently participating consumers a lot more to create better contributions but can also attract new customers who want but acquired no inspiration to co-produce (Ophof 2013). Classical sights of extrinsic inspiration associate extrinsic requirements with exterior incentives that are different from the experience per se, and so are typically regarded as utilitarian in character predicated on some useful or practical advantage (Daugherty, Eastin and Bright, 2008). Consumer innovation, a significant kind of extrinsic inspiration is specified. Those that create an invention to be able to use it are customer innovators (von Hippel et al., 2012). The separable outcome they create is the innovation itself, and their extrinsic motivation is to benefit from using the innovation they create (Bin, 2013; Raasch and von Hippel, 2013). Additional extrinsic motives documented include expected reciprocity, social recognition (Bin, 2013), economic benefits (Hienerth, 2006), and the building of social relationships via participation (Franke and Schreier, 2010; Franke et al., 2010).

2.3.2 Collaboration with Customers

Collaboration with customers refers to the way in which a firm utilizes its customer feedback for benefitting its business, products or services. For instance usually used customer collaboration approaches are social media and networking (Chui, and Sarrazin, 2012). In the recent time, there has been development in different types of collaborative terms (Powell and Grodal, 2009), and majority of organizations select for collaborating with customers (Wilhelmsen, 2011). This can be defined as individuals working as together for achieving a goal, as a platform for exchanging resources, knowledge, expertise as well as ideas (Tryon and Winograd, 2011). Lou et al., (2013) they studied on social media tools and identify best practices that have potential applications to increase collaboration and innovation within Enterprise. An organization can team up with other organizations for developing new technologies and selecting collaboration may lead to strengthening of the organization. One central area of

collaboration is communication and via open communication, collaborating customers can attain the intended goals. An open setting for communication as well as flow of information can foster organizational innovation(Gudda and Bwisa 2013).

2.3.2.1 Customer Collaboration in New Product

Many researchers performed studies regarding the topic of customer collaboration in the development of new product in various ways. In certain studies, the customer integration in a virtual environment has studied (Kruitbosch, 2010) certain other studies discussed the various role played by customers in the product development or the various approaches to customer engagement in the development of new product. Relying on various theoretical aspects, researchers found various benefits or non-benefits of customer collaboration in a new product. A usual benefit pointed out is the customer collaboration being used for understanding the needs of customers, especially in literature related to marketing (Enkel et al., 2005). Customer collaboration can be utilized as a main source of information. As such, many firms adopt the suggestions got from customer collaboration using social media channels and structure their products or services for better corresponding to the desires and needs of customers. Within collaboration with customers, communication across the boundaries of the firm is crucial, especially while working on a new product development (Hoegl and Wagner, 2005).

Later many other researchers identified additional proof that customer collaboration could be a crucial tool for gaining information regarding the preferences of customers and that customers can propose ideas for innovation (Enkel et al., 2005).Collaboration in the organization and outside is a crucial as well as inseparable way of functioning of firms (Gudda et al., 2013). Organizations in specific it is related to the business firms are interrelated in many complicated networks with their stakeholders

and customers. Ford et al., (2006) stated that collaboration between companies, affects profits, lowering costs of transaction, flow of information, learning, NPD, and different types of innovation (Pisano, 2008). Innovation is realized as a process which is much collaborative as well as integrative, which involves more than one party in exchange for ideas, information as well as knowledge flows as well as co-creation of NP. More and more firms are interested in adopting their strategies practices of innovation. For collaboration to take place, participants from the external environment are needed. These have a significant role in innovation's openness. As researchers have shown, suppliers other stakeholders, as well as customers and even competitors, are certain most preferred ones regarding innovation (Chesbrough and Spohre, 2006).

Customer collaboration is another essential means for an organization for enhancing its performance of product innovation (Brockhoff, 2003). Collaborating with customers provides the benefits of identifying the opportunities for technological advancements in the market and it also lowers the chances of bad design in the early stages of product development itself. Also the influential customers and understanding them will be useful for the firm to develop better solutions (Cleven, 2011). It also enables the companies to identify the trends in the market in advance. All contribute to the possible success of a new product developed. As such collaboration with customers may result in the advantages related to product innovation. Cleven, (2011) all through their studies realized the significance of customer collaboration being advantageous to product innovation. Contrary to this, in a survey by (Tsai 2009) in manufacturing firms in Sweden, collaboration with customers was shown to have negative association with the product innovation. Nieto and Santamaría (2007) realized in their studies, that customer collaboration has a positive impact on product innovation, which is in marginal terms and has nil or minimal effect on major innovative aspects. In another study by Belderbos et al. (2004) collaboration with customers and changes in the sales of product were shown to have insignificant relationship. Anyhow, till recently no empirical evidence was available with consistent results. In certain studies, some researchers found out that

collaboration with customers has a positive impact on the product innovation performance (Kruitbosch, 2010).

Customer collaboration is yet another means for an organization for enhancing, its performance of product innovation (Brockhoff, 2003). Collaborating with customers provides the benefits of identifying the opportunities for technological advancements in the market and it also lowers the chances of bad design in the product development itself. Also the influential customers and understanding them will be useful for the firm to develop better solutions. It also enables the company to identify the trends in the market in advance. All contribute to the possible success of a new product developed. As such collaboration with customers may result in the advantages related to product innovation. Gudda, P. and Bwisa, H.M., (2013) through their studies realized the significance of customer collaboration being advantageous to product innovation. Contrary to this, in a study by Nieto and Santamaría (2007) recognized in their studies, that customer collaboration has a positive impact on product innovation, which is in marginal terms and has nil or minimal effect on major innovative aspects. In another study by Belderbos et al. (2004) collaboration with customers and changes in the sales of product were shown to have insignificant relationship.

Monjon and Waelbroeck (2003) studied French manufacturing organizations and found that the collaboration with customers has insignificant relation with the innovation of product. According to (Tsai, 2009) Collaborating with customers is another important way for a firm to improve its product innovation performance. Therefore, customer collaboration will lead to an advantage regarding the innovative product (Tsai, 2009) based on customer requirements and wants. Dealing with customers not merely provides benefits in determining market possibilities for technology advancement but also decreases the likelihood of poor design. Furthermore, understanding the requirements of influential clients may help companies gain new tips

about solutions and recognize market trends in early stages, thereby increasing the probability of new product advancement and success. Hence, consumer collaboration may result in product invention advantages. Collaboration with clients includes a positive effect on product innovation functionality.

2.3.2.2 Advantage and Disadvantage of Customer Collaboration

Relying on different theoretical perspectives, scholars found different advantages or disadvantages for customer collaboration in new product development. A frequently named advantage in the marketing literature is that customer collaboration can be used to understand customers' needs, especially in a rapidly changing world (Enkel et al., 2005; Johansson et al. 2013). Collaboration with customer can be used as a major source of information. One of the first researchers that explicitly paid attention to the central role of customers as source of information is Von Hippel. In the early 70s, he sampled 111 successful innovations and showed that customers were involved in approximately 80% of these innovations (Kruitbosch, 2010). Extra evidence that client collaboration could be an essential tool to obtain details about customer preferences and the ones customers can recommend innovative concepts (Enkel et al., 2005). Once users are obtaining some knowledge of the brand new product, they often desire added features in future variations of the merchandise. Other research in relationship advertising provided even more theoretical and empirical proof that client collaboration may improve the innovation performance achievement price. Another potential benefit is usually that collaboration with clients during product advancement may provide usage of new assets and features that the maker lacks in-home (Gudda et al., 2013). By collaboration with clients, companies might have usage of improved information, features, and resources that could otherwise become unavailable, because clients can offer useful opinions; another potential benefit is usually that collaboration with clients qualified prospects to fewer mistakes in the advancement and a much better product's

quality (Enkel et al., 2005). For services, some bugs could be detected only once the product has been found in the buyer's environment. This result is not only in a better product quality but also in a reduction of the product development cycle time. Also, more scholars claim that customer collaboration contributes to the reduction of the product development cycle time (Kruitbosch, 2010), which is important in a rapidly changing environment. Finally, customer collaboration can be used as a method to reduce market risks (Zhang et al.,2015). Through the collaboration with customers, company's aim to decrease the costs and share the technical and financial risks (Zhang et al.,2015).

A lot of companies have, in fact, already stated to take advantage of customer collaboration and so reducing the risk of failing (Enkel et al., 2005). Following, to these advantages, additionally, there are drawbacks of collaboration with clients. The initial drawback of collaboration with clients is that clients can confuse a business. Because customers say they need something, will not mean that they'll buy it. Furthermore, the integrated clients will represent just a little band of all potential clients. It's possible that the included customer may be the only one thinking about the recently created product to ensure that customers can provide unrepresentative feedback; Furthermore, most customers don't have enough domain of knowledge (Kruitbosch, 2010). Another drawback is that producers might become slavishly specialized in their clients. Most integrated clients mainly expect an individual advantage (Enkel et al., 2005). This may benefits in disagreements about distinctive rights to the invention. Furthermore, also warns for the fight of property or home rights. Thirdly, cooperative production may finish up as only a subcontractor for important clients. By comparing the brand new advancement undertaken in partnership versus those made in-house, didn't discover any critical distinctions. The ultimate potential disadvantage must handle the not-invented-here, where organizations withstand accepting innovative ideas from the clients (Gudda et al., 2013). Some R&D departments are openly against the collaboration with clients during new product development (Kruitbosch, 2010) and can reject all exterior ideas.

2.3.3 Definition of Electronic Word of Mouth

The conventional Word Of Mouth is considered as an informal aspect of marketing, where the individuals who are either part of the manufacturing firm, customers or anyone relevant discusses regarding a specific brand or product or service, which has the potential to positively and negatively impact the sales of the particular product or service. Currently, because of the widespread nature of internet in commercial circles, WOM has become e-WOM. E-WOM is where the same statements regarding a specific brand of product or services get spread virally on the web (Cheung and Thadani 2010). E-WOM can be defined as any positive, negative or neutral statement made by customers or anyone relevant or irrelevant to a specific brand on the web platforms via media such as instant messages, posts or comments (Kietzmann, 2013). E-WOM is an interesting topic in academic and industrial circles recently due to its ability to capture the audience. The e-WOM is the real or unreal experiences of people regarding a specific brand of product or service (Bryun and Lilien, 2008). E-WOM, in fact, does nothing other than transferring the views and opinions of people or product from the traditional system of casual or formal talks and discussions to web platforms. The web has shown to have great significance in the current business world, especially in the case of products or services such as consumer durables, etc., the e-WOM has significant influence. Companies use this strategy to create positive e-WOM for their products and services. The opportunities for mutual customer influence have increased with internet's widespread availability and accessibility to all worldwide (Brown, Broderick, and Lee 2007; Dwyer2007; Goldsmith and 2006).

Many web platforms such as social networking sites, emails, blogs, video sharing sites, etc. are channels which can be used for e-WOM (Vilpponen et al., 2006). Mostly product or service reviews and web user's posts and comments by e-WOM (Kietzmann, 2013). Various online platforms such as social networking sites, emails, blogs, and video

sharing sites are channels which can be used for e-WOM. Even the company owned websites; blogs can be used for creating e-WOM. These are used by many organizations today for creating positive feedback regarding their products and services (Matta and Frost, 2011). E-WOM is easily accessed by many users, as internet is widespread and readily available and also because most customers feel a sense of belongings, genuinely and openness when they interact, comment and post online (Li, 2011). As such companies have started using the e-platforms for promoting positive e-WOM on their products and services. Web users are more likely to rely the social networking sites which have more customer interactive interfaces for trusting the feedbacks on products and services (Chu, 2011).

Kozinets et al. (2010) stated that when potential customers or existing customers are interacting with the companies on web platforms, the latter has to take into account of the advantages such as- product flaws identification by customers and improvement suggestions alongside the negative aspects such as not being judgmental or dominating the views of customers. Such acts can bring in bad reviews online (Gallaugher, 2010). Social media has become a crucial part of daily lives across the globe. The likeliness of people to engage in social media channels has forced companies to focus their marketing activities on the same. Moreover, unlike traditional media, e-platforms are less expensive to manage and maintain by the companies. Many manufacturers recognize the shift in customer's attitude to engage in e-platforms. Regarding web marketing, aspects of Search Engine Optimization (SEO) skills can be utilized by the companies by identifying the customer keywords search and can even make them a part of the product innovation (Hung and Li, 2007). E-WOM has significant role in organizational marketing. Customers share their experiences and views on specific segment of products and services on various web platforms. Companies can use these reviews and feedbacks for their new product development as well. Further to this, the improved access to web and enhanced activities of social media has encouraged individuals to have some web presence throughout which can also be used by the companies in promoting their

product and services (Li, 2011). As many social networking sites and other social media channels have increased their visibility on the web, the same is beneficial for the customers to share their experiences and the companies to utilize the visibility for innovation (Li, 2011).

Liu et al. (2010) examined eWOM for new product; they discovered that the number of eWOM messages could be utilized to predict the achievement of a product at all stages. Also, they found that the number of sentences in eWOM is normally significant. Many of research over have verified that customer information is certainly profoundly meaningful to new product success. As a result, it's important to find useful information from eWOM messages to market new product effectively (Gallaughar, 2010).

2.3.3.1 Characteristics of Electronic Word of Mouth

Electronic Word of Mouth makes use of the internet infrastructure for the propagation of positive or negative WOM regarding a specific product (Simmons et al. 2011). These online media is mainly characterized by the individual's interactivity which allows the organizations to have a sort of interaction with their customers which was not previously possible (Chu et al., 2011). Also, the e-WOM is considerably faster when compared with the conventional WOM (Mason, 2008). As such e-WOM has become critical in the web media. Web users prefer to have the benefits of using e-medias such as social networking sites and engage in interacting with each other's on such product or service reviews as well. This is a benefit that they seek out of the interpersonal communication opportunity on web media. As such e-WOM has many benefits because of its two-sided communication between customers and the organization. The organizations can reach a mass market with less expense and less span of time. Also, the reviews and statements regarding a specific product will pertain to the web media for

much longer whereas the same is short in case of conventional WOM (Chu et al., 2011). This makes e-WOM practically better and beneficial as compared with the conventional WOM, which has limitations regarding face to face communication.

On the web platforms, as users can even hide their identity and the perspective of face to face communication is not coming in, individuals openly share their views and reviews. (Dellarocas, 2003). Users of a specific product or service can have unbiased reviews of the product or service and can write them online. These reviews can be used by other potential customers who use the web for product innovation. Various web platforms' availability makes internet an option for ease and practically possible one for customers to share their good views and opinions regarding specific products and services (Gruen et al., 2006). E-WOM is the opinion of customers regarding their experiences as 1- opinion leaders have a powerful role in the process of content sharing, 2- the process of interaction takes place online via various social media channels, 3- is based on a network, 4- directed to many individuals at a time, 5- e-WOM is interaction with no time limit as well as constraints in terms of location, 6- as well as it can be anonymous.

2.3.3.2 Opinion Sharing about Experiences

The cyberspace gives a chance for consumers to exchange opinions. Using participating in electronic word-of-mouth, customers or businesses can theoretically collect unbiased product information from additional consumers and provide their usage related tips (Hennig-Thurau et al. 2004). EWOM functions as a path for social impact - the procedure where individuals make adjustments with their thoughts, emotions, attitudes, or behaviors consequently of getting together with others online (Careers and Gilfoil 2012). Amblee and Bui., (2011) discovered that consumers appear to provide and seek opinion online, likewise influencing the product sales of several goods and

solutions. Many experts identify this content distribution as a specific differentiator between WOM and eWOM (Chu and Choi 2011, Henke 2011, San José-Cabezudo and Camarero-Izquierdo,2012).

Electronic Word of Mouth elements is specifically opinion sharing, not only information giving and seeking, as in traditional WOM (Shu-Chuan and Yoojung 2011). Shu-Chuan and Yoojung (2011) specify that the opinion-passing behavior occurs more likely in the online context, as the Internet enables multi-directional communication. Hyuk Jun and Morrison (2008) Burton and Khammash (2010) recognize the assumption and discover that eWOM may be the articles conveyed by users. The individual moving the eWOM message will not necessarily create this content shared. The rising complexity of progressive services and products is dependence on posting and reading views online (Gil-Or 2010). Virtually all the authors claimed that customers look for and share information regarding activities others experienced (Bronner and also De Hoog 2010, Petrescu and also Korgaonkar 2011). Through empirical research, Vilpponen et al. (2006) discover that the view clients have a substantial role in invention on internet.

2.3.3.3 Electronic Word-of-Mouth (EWOM) Channels

Various structural forms of electronic word of mouth communication are established (Cheung, 2012). Not necessary that everyone has formal electronic word of mouth. For instance, there are formal reviewers of various products or services who use the same and reviews in a very systematic and formal way. There are also users who have either with experience of using the product or with limited knowledge posts, comments, etc. on specific web platforms regarding the products or services. This is considered more as informal ways of e-WOM. Also, the structure of various social media channels differs from one another. For example, social networking sites such as Facebook, Twitter, and such websites vary in the way people interact online when

compared with micro-blogs, corporate blogs video sharing sites or podcasts (Thadan, 2012). This is getting more complex with the development of Web 2.0 technology in the recent years. This also indicates that fact that there is much room for customers to share their views and experiences on the social media for product innovation.

2.4 CRM in Malaysia

CRM implementation by organizations started towards late 1990. Recently many firms in Malaysia have begun to implement CRM. It is due to the realization by many companies that the benefits of the CRM are beneficial in the long-term future of the firms. Also, many organizations have wasted much of their capital expenses regarding not having a proper CRM system in place. As such most MNCs Malaysia has started implementing CRM for quite a long time already. Customer Relationship in many industries ignored during the last many decades in Malaysia. This has led to the wrong word of mouth and inefficiency of many organizations in Malaysia (Sit et al., 2009). Customer relationship has become the main medium in gaining profits by all kind of business in Malaysia. The economy in Malaysia is growing and leads the retailers and businesses to explore more on how to obtain more attention from customers and getting business profits. Successful Malaysian companies will become those that continue to invest in CRM and change their attempts from customer acquisition to customer retention. Malaysian companies are more aware of CRM and have a positive view of its market growth (Sulaiman et al. 2014).

2.5 Benefits of CRM

Yao et al., (2011) stated that when organizations maintain a continuous link with their customers, will be useful in creating a feeling of trust and security among them.

Many studies and their findings indicate some benefits common in every industry while adopting CRM. (Thuyet al., 2013): Improving satisfaction of customers, Retention of existing customers, Provision of strategic information, Customer's lifetime value enhancement. Advantages of implementing CRM have also been studied by, and the findings can be summarized as below:

Retention- Keeping a customized relationship with every customer ensures that availability of their crucial information such as preferences and desires. The customers will eventually turn to be loyal to the organization (Thuyet al., 2013).

Profits – Profits can be made by keeping a long-term relationship with customers. When customers turn loyal, they become continuous customers and also spread word of mouth in a positive way. All of these make the organizational sales good. As such long-term CRM enables the profitability of the firm. Teng, Ong and Ching (2007) stated that with the evolution of technology and its continuing advancements, identifying the needs of customers, their preferences and desires has become easy. Customers who are highly profitable, who are potentially profitable in the future and the ones who will never be profitable at all will be able to be identified by CRM. As such firms can cut down on operational costs and can increase revenue in the longer run. Technology has aided in this context, where organizations can identify the most desirable customers and their needs. Also, the customers are made part of NPD and innovation (Battor et al., 2010). For exploring these aspects, the authors investigated adoption of CRM in Malaysia's manufacturing sector. 120 firms in manufacturing sector's six different streams chosen for the study. They realized that in different sectors the objectives for implementing CRM and the ones that in reality paved the way for the implementation are not the very same. It stated that in manufacturing sector CRM plays a vital role, whereas it is less likely to be turned into a competitive advantage of not appropriately focused. Even though the majority of CRM benefits are different in various business fields, there are

some of them common to all fields (Matušinská, 2009). These are generally: reduced customer acquisition expenses, enhancement of customer products, increased customer loyalty, increased customer retention, increased profitability, easier identification of customers who are profitable, increase organizational productivity (Alhaiou, 2011)

Integration of data and sharing of knowledge with every dealer incite the design of customized activities, which stimulates enhanced levels of product. As a result of customer enhancement, the satisfaction of customer improves, and customers get retained with the organization for longer periods. Also, customer loyalty increases as firms can utilize knowledge of customers to develop programs associated with loyalty. Organizations can identify which customers are profitable and then ones will be in the future and the ones which are never profitable at all via analyzing the data of customers. CRM gives organizations an advantage of customer knowledge via efficient and effective internal as well as an external flow of information and communication (Ogbadu, 2012).

2.6 Definition of CRM

Customer relationship management is a comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer. It involves the integration of marketing, sales, customer service, and the supply-chain functions of the organization to achieve greater efficiencies and effectiveness in delivering customer value (Chen and Wu 2014). CRM needs a customer focuses organizational culture and such a business philosophy, for supporting effective sales and marketing which in turn enables the effective relationship between the customers and organization, leading to enhanced customer satisfaction and loyalty. CRM is a type of approach which gains a 360-degree view of the customers, collecting data from every possible touch points and maintains a positive rapport with

the customers, thereby increasing the loyalty of customers and expanding the value of customers to a lifetime.

Ogbadu and Usman (2012) posited that customer relationship management deals with customer data management and the management of customer touch to maximize customer loyalty by building and maintaining profitable customer relationships and delivering superior customer value and satisfaction. CRM may also be regarded as a business technique which identifies rewarding customers and potential clients and devoting period and focuses on expanding such interactions with those clients (Kotler and Armstrong 2008). Nazari et al., (2015) CRM aren't only in a position to maintain companies normal customers; additionally, it is useful in encouraging clients to provide more recommendations and implications to improve the standard of products and services. In fact, CRM would help organizations achieve relevant knowledge about customers' preferences. In fact; CRM would help companies achieve relevant understanding of customers' preference. CRM, in addition, has become an efficient and efficient device to build up innovation features and generate competitive advantage in an organization. CRM requires all actions that companies establish long-term, constant, lucrative and mutually helpful relationships with clients. Ernst et al., (2011) consider CRM as an activity for customer conversation administration to build, develop, and keep maintaining long-term and helpful relationships with clients.

CRM has capabilities which allow client related info to become systematically used in new product development with techniques that could improve performance (Ernst et al., 2011). Organizations used the screen their customers and maintained some focus groups who are critical customers for them. The focus groups play a crucial role in communicating with the companies regarding the purchase desires; buying behavior, etc. the company utilizes this information regarding product development and maintenance. As time went by, companies started to realize that what is essential for the

communication with their customers is the basic information such as customer needs, purchasing frequency, average spending capacity, etc. as such the focus groups proved to be of less use to the firms. The organization used survey questionnaires for collecting information from the customers (Das, 2009; Kevork and Vrechopoulos, 2009). CRM used for active enhancement of customer service and passive growth in sales. Today CRM is used by firms for achieving profits as well as to maintain a good relationship with their customers (Das, 2009).

Ku, (2010) CRM can be defined as a technical storage of data regarding the contact details of customers as well as their preferences, which can be stored as well as re-configured easily for the organization. An organization can use CRM as a strategic tool for maintaining relationships in the long term with its customers or segments of customers. The data regarding the customers can be used in such a way that it can be beneficial for the organization in understanding the customers as well as to create value together with the customers. Computer-related applications and CRM can be linked to collect information about its customers (Lin et al., 2009). CRM is mostly implemented via computer developed applications (Ku, 2010). Ramani and Kumar (2008) stated that in good CRM implementations, customer satisfaction alone is not the only aim. In good CRM practices, customers get involved with the organization and input his or her suggestions, opinions and views in new product development, and CRM can play an essential function in understanding clients' needs for new products (Nazari., 2015). As such proper CRM is also a source of innovation capability enhancement for the organization. This can, in the long run, be transformed into a competitive advantage by the organization (Sahay and Ranjan, 2008). Wu et al., (2012) stated that is the process where the organizations get in touch with their customers to satisfy their needs, to identify their preferences, solve their problems, and give support after sales and to create a long-lasting relationship with the customers.

Ogbadu.,(2012) defined CRM in-depth as a longer term business philosophy which concentrates on the collection and understanding of information pertaining to the customers, treatment of various customers in different manner, giving higher level of services for the best customer segments and using all of these for earning loyalty of customers as well as improved profit. Catalán,(2012) defined CRM as a core strategy of business which combines the functions as well as internal processes with the outside networks for creating and delivering value to the target segment of customers at a profit. He also emphasized that the data used should be of high-quality customers.

Ranjan and Bhatnagar (2008) stated that CRM guides firms to concentrate on their customers and CRM system could enhance sales by enhancing customer relationships, thereby improving the loyalty of customers. CRM is assumed to increase a firm's competitiveness and also to have a positive influence on the corporate innovations (Ernst et al., 2011). Some of the advantages of CRM are collaboration with customer leading to strong bond between two parties, a clearer understanding of the needs of the market, less error in the product's development as well as enhanced product quality and customers can give first-hand information pertaining to the needs which can aid in the creation of innovative ideas for new products as well as give feedback concerning the concepts (Nazari., 2015). Wang et al., (2013) stated that CRM is a management method which allows organizations for identifying, attracting as well as increasing the retention of customers who are profitable as well as managing associations with customers. There are various activities under CRM. An organization has to distinguish between them and has to identify which one has to be implemented as well as which one will be profitable for their firm (Shang, 2012).

CRM has both internal and external organizational aspects. The internal aspects are associated with the structure of the organization, management of knowledge as well as culture. External aspects can be identified as the organizational interaction with

customers or other stakeholders for gaining valuable information. External aspects are also seen regarding having a strategic alliance with competitors for sustaining in the market (Lin et al., 2010). This research concentrates on the aspects of CRM; the framework of the theory is as follows: Information sharing, customer involvement, long-term partnership, joint problem solving, technology-based CRM.

2.6.1 Information Sharing

Many studies have been done on the effect of sharing of information in the recent times. It is seen as a useful tool for building relationships between customers and organizations (Datta and Christopher, 2011; Wu et al., 2011). Sharing of information is the exchange of necessary and exclusive information through customer-organization interaction. This information comprises of details on market demand, preferences of customers, promotion for sales, new products' introduction to the market, etc. (McEvily and Marcus, 2005). It also has aspects of market competition (Lagrosen, 2005) Researches indicate that participation by customers impacts the new product's value. Also, such customer participation impacts the efficiency of NPD. Information sharing thus contributes to the extent where customers and the organization effectively engage in information exchange regarding product ideas, competition, market, etc. among various other issues. Adequate sharing of information between customers and organization will aid in exploring the unique abilities and opportunities for value creation (Fang et al., 2007). Hence sharing of information between customers and the organization should enhance the new product's value. Lin et al. (2009) defined sharing of information as the exchange of valuable information between an organization and its customers. Mostly the information is comprised of data concerning the demands of customers, their preferences, and promotion for sales.

As per the studies of Datta and Christopher (2011), sharing of information has two levels. In the first level, no sharing of information takes place. In this level, there is no coordination between customers and the organization. In this stage, the members function in self-interest with the use of local information. In the second level, complete information sharing takes place. Information is used at this stage for collective decision making, and a wide perspective is attained. Based on the extent of sharing of information, decision making also varies. For reducing the uncertainties in the organization, as well as among customers and the organization, one preferred strategy is the sharing of information.

Since today's organizations have continuing investment in CRM, they developed new sort of relationships with their customers. Customers make use of internet media and applicable technologies for interacting with the organization. Co-creation throughout technology relied methods for interacting with organizations has become common. This is becoming crucial in the innovation and the growth strategies adopted by organizations. In this context, the conventional research methods are considered outdated, and the new technology approaches are seen as more convenient for the customers to get involved with the organization. As such it indicated the need for studying the sharing of information between customers and the organization in the context of value co-creation, instead of innovation being majorly generated by the organization alone (Roberts, Baker and Walker, 2005) Anyhow as Li and sang., (2011) stated that the information sharing used to be a source of competitive advantage in the 90's for the organizations, whereas it is not the case in the rapidly changing business world today. There is a need for combining the sharing of information with the efforts of collaboration. Information sharing has become one of the crucial processes in the integration process of supplier and the customer. That is the critical information about the levels of inventory; marketing technology is shared between the customers and the suppliers (Buttle, 2009). Information about the customers means the preferences and desires of the customers, which are considered as valuable assets of the organization to

successfully develop and distribute the products, thereby surviving a longer term in the market. Sharing of information is a critical component of CRM. It is a foundation stone for the development of a long-term fruitful relationship between the organizations and their customers. It can pave a way to the competitive advantage of the organization (Heczková et al., 2011). Sharing of information can result in enhanced quality of the product.

Wu et al. (2011) stated that those organizations involving much in the sharing of information have competitive advantages in the market. It is because when the sharing of information takes place between customers and the organization during product development itself, the chances of market failure is less because of the product satisfying the needs of the customers. Datta and Christopher (2011) stated that when the firms engage customer information sharing, their overall productivity, profitability and efficiency increases. This is because of the ability of the firms in delivering what exactly the customer needs by knowing right from the customers. This section outlines the importance of sharing of information in attaining CRM, impacting the relationship between the stages of growth as well as getting mutual benefits among the providers of information as well as receivers of information.

CRM in its broadest sense simply, means managing of every customer interactions. The widest of these interactions refers to the sharing of information. In practice, marketers are to use the information regarding their customers as well as prospects for proceeding with much interesting interactive sessions with them in every phase of the relationship. Sharing of information between customers and suppliers is identified as a crucial element in the implementation of CRM successfully. Information access is the entry for understanding customers and hence is regarded as a fundamental pre-requisite for the management of CR. In-depth information sharing may enhance the quality of the product (Wang, 2010) As well as facilitate NPD. In the actual process, this

may involve the other party to be a part of the cost, information sharing as well as the development of future products.

Lin et al., (2010) stated that when information is affected and not shared among the parties, failure in the market is more likely to take place. In other words, information sharing between customers and organization has a great deal of impact in maintaining a long-term relationship between two parties (Lin et al., 2010). Crucial information sharing is what holds an organization and its value chain intact (Morgan and Hunt, 1994). All possible information regarding the desires and needs of the customers has to be grasped by the organization in the process of information sharing to better serve them in the future (Lin et al., 2010). Information can aid the organization to be powerful than their competitors and can weaken the customer base of their competitors. When an organization understands a customer in a better and in-depth way, the customer can be retained for a longer period. Also when the customer and organization engage in in-depth information sharing, the profitability of the firm increases. In such a context, the organizational ability for processing and analyzing the information is critical to the success decision of organization-customer relationship. Li and sang, (2011) indicated that more the information sharing between suppliers and customers, the more is the possibility of attaining mutual goals.

2.6.1.1 Significance of Information Sharing

This component states the need for information sharing in attaining CRM, influencing relationship development phases and getting mutual benefits between info providers and info receivers. Customer relationship management in its wide essence means managing all client interactions. The most extensive interaction identifies the info sharing. Used, marketers must use details about their clients and potential customers to precede better conversation with them in every stage of the partnership. The sharing of

info among parties is determined among the essential tools to apply CRM successfully. Accessing to info is the entry to understand customers and therefore is considered as an essential prerequisite in controlling the client relationship. Greater posting of info may improve product quality (Ernst et al. 2011) and facilitate new product development (Ernst et al. 2011).

Williamson (2012) suggests that when information is impacted and (not shared between the parties,) market failure is more likely to happen. Sharing information within an organization and with customers plays a vital role in maintaining a long-term relationship. Sharing useful information within an organization serves as the glue that holds organizations, franchises, supply chains and distribution channels together. Exchanging relevant information with customers reduces customers' decision-making uncertainty attains to accomplish long-term customer relationship (Morgan and Hunt, 1994). The information obtained can assist providers to understand customers' needs, wants and desires (Wang, 2010). Therefore, customer to build up the long-term relationship, the expectation of getting all information is an ongoing process. Information can help the companies to strengthen their customer base and simultaneously weaken the customer base of their competitors. The more company understands their customers, the longer the customers stay with the company. To achieve the targets of customer retention and company profitability, the abilities to apply information and process the complexity of information is the essential requirements. Both sides of companies and customers are willing to share information with each other continuously (Lin et al., 2010) free exchange of confidential information is characteristic of more close relational exchanges. Therefore, information sharing increases the customers' satisfaction.

2.6.1.2 From the Perspective of Customers

Sharing of information allows the customers to be always informed and through the points of contact in which they are most likely interested (Lau et al., 2010). When new product or a service is introduced to the market; the potential customers will be updated on the same. The easily available fundamental personal information regarding demonstrated interests of customers' enables the proper information transformation towards the proper customers. Sharing of information plays a vital role in the reduction of costs those customers pay for the products and services. For instance, since manufacturers, wholesalers, as well as retailers, know how much of what is needed by the customers, the costs are reduced. Information sharing also fastens the process of decision making. Routine information sharing aids in all these discussed benefits. Also, in every one of these practical situations, the customer wouldn't have anticipated in advance that the information would be needed by them from the manufacturers (Greenberg, Paul, 2001). According to Lin, (2010) information sharing identifies to sharing and exchange important and exclusive information through interactive actions between manufacturers and their clients.

2.6.1.3 Aspects of Information Sharing

Two elements of sharing of information include the content of the information and the quality of information (Anekal, 2014).

2.6.1.3.1 Information Quality

The quality of information is measured regarding the relevance and significance of the information exchanged between the suppliers and customers and their ability to

meet the demands of customers and is a necessary element for organizational success (Rashed et al., 2010). Omar et al., (2010) Access to the right information would enable firms to reduce uncertainty and improve planning which in turn improves their profitability. Firms that have access to the right information would be more proactive in responding to changes in market conditions thereby becoming more focused on meeting customer needs. Omar et al., (2010) stressed that information quality should encompass the elements of accuracy, timeliness, adequacy, and credibility of information exchanged. Similar attributes were used in. Andersson, K., (2012) define information quality as information that fits the user's needs. The person who is providing the information must understand what quality means to the user of the information, to be able to improve the information quality.

Gustavsson and Wänström (2008) have identified ten information quality dimensions in manufacturing planning and control. The quality of the shared information refers to accuracy, timeliness, adequacy, and credibility of the information exchanged (Li et al. 2014). The variety of information has various characteristics which have been studied by many researchers. (Bonner, 2010) Argue that higher new product performance could be attributed to using higher quality customer information. High-quality customer information leads to building products which better satisfy customer needs than do competitive products (Bonner, 2010). According to (Bonner, 2010), there is a Significant relationship between customer information quality and new product, Positive direct of moderating effects of product newness on a relationship between customer interactivity and customer information quality.

2.6.1.3.2 Information Content

Hatala et al., (2009) there are two flows of information, the information shared by the organization with the customers and the ones shared by customers with the

organization. This includes forecast by customers, history of product sales as well as plans for promotion. Information content refers to the nature of the information being shared. Information content can be classified as supplier details, manufacturer information, consumer information, distribution details, and retailer details (Anekal, 2014). This research measures two details flows: the info that manufacturers tell their customers (manufacturer information) and the info that customers tell their manufacturers (consumer information). The content of shared information refers to what information is shared between the manufacturing firm and its customers (Li et al. 2014). Information sharing between manufacturers and customers can improve the trust between two parties and have a positive impact on innovation performance (Forslund and Jonsson, 2007).

2.6.1.3.3 Information Sharing and Product Innovation

Product development takes place as a result of engaging an organizations resources and capabilities (Teece, Pisano, and Shuen, 1997). These capabilities are the information possessed by the organization, customers, the technical know how and many more elements (Moorman and Slotegraaf, 1999). There are marketing uncertainties, technological in capabilities and lack of experience when an innovative product needs to be developed (Olson, Walker, and Ruekert, 1995). When information, knowledge shattered within the customers, organization, and suppliers are combined the capacities are joined, and the possibilities for developing a new product out of innovation is more (Hamel, 2002). Mcdermott and Handfield (2000) stated that informal sharing of information between the customers and suppliers give interactions as well as synergies for the designing of innovative products. Von Hippel (2005) argued that the customers, as well as suppliers, are the primary source of innovative ideas for the stimulation of new products. Even though customers, as well as suppliers, may give familiar ideas to the organizations, these shouldn't negatively affect the PI as the

organization is the final decision maker in terms of choosing the innovative ideas and solutions proposed. Von Hippel (2005) also stated that crucial information could be gained as well as utilized by the customers as for enhancing the innovation of the organization. Sharing of information from the suppliers as well as customers and the direct association with an organization's financial performances has been explored before, but the association to the innovativeness of product is less studied.

2.6.2 Customer Involvement

Involvement of the customer can be defined as the extent to which the customer involves in creating a new or an enhanced product or service (Cheng et al., 2012). Product development, organizations involve customers to get crucial information from them regarding their experiences and opinions in using the product or service. This will reduce the possible failures or errors of the products and services (Cheng et al., 2012). The uncertainties concerning the demands of products and services by target market can be reduced when customers are made a part of the product innovation cycle (Chien and Chen, 2010).

Knudsen (2007) stated that external associations are crucial for the performance of product development. It was also stated that customer involvement is the most commonly used relationship. CRM is a comprehensive customer relationship management system prevailing in organizations. Effective CRM practices take into account of the needs and desires of customers to satisfy their needs and maintain a long-lasting relationship with them. When a customer informs an organization of his or her needs and desires, it means that the customer is collaborating with the firm (Peppers and Roger, 2004). Market trends and technical support are given by customers who can be used by the organization for the good of both parties (Li et al., 2011). Organizations listen to customers, their preferences, needs, and desires to identify their ideas and wants

to perform better regarding product development and their sustainability in the competitive market (Svendsen et al., 2011). It has been found that customers integrating with the companies in NP are tending to give more value to the elements that satisfy them when using the specific product or service (Lagrosen, 2005). Increased customer value, ensures satisfaction with customers and their loyalty. This will again enhance the brand name, the image of the firm and aid the organization in competing in the domestic as well as international markets (Gungor, 2008).

Iruka, (2014) defines customer involvement as the interaction or collaboration between the members of the channel and the organization during the process of development of a product for actualizing a commercial product. In product development, customer involvement is the ideas and suggestions presented by the customer to the organization, its features as well as interactive communication (Svendsen et al., 2011). Wang et al., (2013) Stated that customer can be used interchangeably and that the involvement of customer is the development of product shows the interaction between customers as well as the process of design. Client involvement also improved considerably on account of gaining and retaining a sustainable competitive advantage in the new product development (Feng et al., 2010).

As per Kristensson et al. (2008), the involvement of customer can take place in 2 ways- at first, the customer is engaged in the stage of completion and gives opinions for improvements to a product that is almost completed. In the second one, the customer is already involved in the product development right from the beginning and delivers a product or service as per the preferences of the market. The customer involvement can be both in reactive and proactive ways. Reactively the customer answers the survey questionnaires to build the product as per the needs of the market and in a practical way the customer involvement over a period of time with the organization for observing the behavioral patterns of the market (Kristensson et al., 2008). In Kristensson et al. (2008)

study, they stated that involvement of customers has a positive impact on product development and generate innovative ideas in the same. Gent et al., (2014) initiated various categories of customer involvement such as customer designed products, Facilitating co-creation of design, Integrative- designed for the customer. As such customers can give valuable inputs which can contribute to the betterment of product design and development.

Multiple studies have evaluated the value of the involvement of customers in both new product and service development (Desouza et al., 2008; Kristensson et al., 2008; Carbonell, Rodriguez-Escudero and Pujari, 2009; Enkel et al., 2009; Bhalla, 2010). Guided by this increasing awareness of the customer's importance in new product and service development, firms are actively involving them in the innovation process as they take part in the design of new products and services (Piller, Ihl and Vossen, 2010).

Carbonell et al. (2009) and Knudsen (2007) in their studies argued that product innovation has nothing much to be done with the involvement of customers in product innovation. Carbonell et al. (2009) stated that involvement of customers has a positive influence on the operational results, including technologies and organizations developing technologies will gain more than the product organizations to interact with their consumers. Customer involvement in innovation is least related is because most customers in the average segment cannot be as much creative as needed for the product development in innovative ways. Most of them share their experiences and needs rather than being innovative as the organization demands innovation (Cheng et al., 2012).

2.6.2.1 Key Factors of Customer Involvement

Empirical studies have focused on the innovation aspect in when it comes to customer involvement (Alam, 2002). Alam developed a theoretical framework with three essential elements which described various types of customer involvement (Magnusson, 2003). Alam's (2002) major elements are Aim of customer involvement, Intensity of customer involvement, and Means of customer involvement.

The first factor: Aim of customer involvement is regarding the aim of the organization for involving the customer in the process. These can be a reduction of time, costs, and incorporation of customer-friendly ideas, etc. the Phases of involvement of the next element, which states the stages of product innovation where the customer will be a part of. The third aspect is the intensity of involvement of customers which shows the depth of involvement by the customer in the NP innovation process. The final element is the means in which the involvement of customers in the process is made possible (Alam, 2002).

2.6.2.1.1 The Purpose/Objective of Customer Involvement

For being able for innovating new product, there are mainly two aspects-the manufacturing firms should know how and what to innovate. As such it would be beneficial for the firms to understand what the customer's desire is. With this knowledge, the firm might be able to develop a proper method of idea development that suits the situation (Gent et al. 2014). The firms can use the inputs of customers in the process of idea development as well as in the continuous process of innovation. The product or service has a value aspect which is the latent needs. Customers might not have truly realized their latent needs and hence might not have communicated it to the

manufacturer (Gent et al. 2014). As such the firms might not be able to access these latent needs of the customers which are hidden within the customers (Matthing et al. 2004). Borgqvist and Lindberg., (2011) the knowledge regarding the needs of users is in tacit form, which makes it hard for knowledge transfer from customers to the organization. This can explain why it was users who paved the way for new ideas and not the organizations as per the study by Lettl (2007). Also, it is not just enough to ask simply the customers or users for their ideas; they got to be involved more. Hence, if the product manufacturers have an active strategy, which results in engaging customers in an early stage in an intense way, they get better knowledge regarding the customer desires and lower the risk of imitations in the market, and having a competitive advantage in the sector (Feng et al., 2010). Ulwick (2002) argues that customer opinions are limited to their experiences, and it has no relation to the use of technologies in an emergency.

Borgqvist and Lindberg, (2011) stated that the role of customers in NP or innovation is sharing their knowledge, contributing their experiences and expertise and also informing the organizations regarding their frustrations, issues, and needs as well as an expectation of the product or service (Borgqvist and Lindberg 2011). Also, it was stated by them that customers have to be prepared for learning as well as experimenting with the product innovation process. Alam (2002) mentioned that due to the changes in the product sector's structure, there is a need for continuously engage in developing new products which suit the customers. He also stated that those products have to be in the market at the right time and to attain these aims, engaging customers in the process is crucial for reflection, also, customers -suppliers collaboration can be advantageous for the firm, as it can create mutual understanding of the opportunities in terms of technology for both parties. Borgqvist and Lindberg,(2011) agreed with this and mentioned that customer idea can be utilized for understanding and learning customer better as well as their needs.

Borgqvist and Lindberg, (2011) argued that innovation of product and customer involvement are two things if managed well, has excellent valued information regarding customers and it impacts innovation in a positive way. Also, Alam and Perry (2002) mentioned that involvement of customers could aid better public relations. This, in turn, will help the company to have loyal customers. With a pool of loyal customers, companies can have a long-lasting, strong relationship with the market. (Antikainen 2011). Alam (2006) also emphasized on the reduction in the cycle of development, which can be a result of customer involvement. (Borgqvist and Lindberg 2011) Stated that a small development cycle is not advantageous all the time due to possibilities of poor quality product development or incremental innovations with nil or negative results in final products. Alam (2006) stressed that this one negativity is more concerned with product development but with nil relation to product innovation. Alam stated that if customers are involved in the innovation, then companies can develop innovative products in a faster way which satisfies customer needs and he also stated the examples of many pioneer innovator firms in his studies. Borgqvist and Lindberg, (2011) Stated that customer involvement can enhance the development of differentiated products and fulfill their needs and desires. This interaction also helps both parties to get educated on NP.

2.6.2.1.2 The Intensity of Involvement

Involvement of users in product development has always been a subject that faces contradictions. Lundqvist and Yakhlef (2004) emphasized on the aspect that involving users in product development and innovation as a completely legitimate process means using them for defining the meaning of the products and in developing new ideas. Some of the researches emphasized the intensity of involving customers in NP. Nambisan (2009) was one the prominent researchers who did emphasize the intensity to do so. He mentioned that users have to be involved in the NP by bringing

them inside the organization in NPD itself to input their competence and they got to be recognized well by the organization. This interaction between the customers and the organization in the process of NP makes the users act as a collective actor in the process. Lettl (2007) studied the process of NP, innovation and customer involvement and found that users mostly have a passive role in the process of NP and innovation. The contributions from the customers, their management and creative and innovative supports are uncertain. As such Lettl didn't find using users in the process of NP and innovation to be fruitful enough. The central part of a market-based strategy is interaction, which makes the association with customers highly significant.

Nambisian (2009) stated that the interactions between organizations and the customers could be costly and hence needs proper management overview. Chen et al. (2014) Stated that in NP, customers have to be involved in innovations that are too creating a long-lasting relationship which can favor the product success in the market and reduce errors in products and unwanted cost. Lundkvist and Yakhlef (2004) the frequency of the integration has to be often and intact for yielding better results in the market. Only with a continuing relationship, information transfer happens from customers to the organization.

Alam (2006) studied the interaction between the users and the organization. He found out that having new customers in the NP and innovation is of less use and there might be conflicts of interests and lack of mutual trust. At the same time, Alam also realized that involving the loyal customers of the organization in NPD and innovation also has a negative side. It is that the loyal customers cannot provide any more rich information with diversity. Regarding innovation, companies don't risk much in customer's involvement (Alam 2006). This is because of the threat of losing the confidential data, ideas to the competitors. Alam (2006) also mentioned on the difficulty in choosing the appropriate right candidates for involvement. He argued that most

customers who interact in this stage prefer something in return in tangible form, which cannot always be adopted or in the long term. They expect some incentives for being a part of the data collection and NP process. There is also one risk involving the customers too much in NP and innovation. The end product might get highly customized in such a way that it won't be liked by the majority of the market.

2.6.2.1.3 The Modes of Involvement

Borgqvist and Lindberg, (2011) stated three crucial challenges when users are involved in NP and innovation. The first one is to choose the appropriate candidates for the interaction. The second one is to plan the right incentive or compensation system that satisfies the customers involved in the process. The third one is the mode of collecting the needed information from the customers involved in the process. This means how the information can be extracted out of the involved users. Furthermore, Alam (2002) stated that the mode of interaction between the users and the organization in the NP and innovation could be of many such as emails, phone calls, direct in-person visits, discussion sessions, face to face interviews, survey questionnaires, etc.

Borgqvist and Lindberg (2011) stressed on the need for having high-intensity interaction between the customers and the organization during the NP and innovation. He mentioned that this is because only an in-depth understanding will result in clear mutual understanding between the suppliers and customers. At the same time, the low-intensity interactions cannot be considered for any use. Also, he argued that such low-intensity interactions can also be considered as an inspiration for the ideas generated on which the organizations can work on later to develop new products out of innovation. Andreassen and Streukens' (2009), pointed out the importance of getting into the web discussion platforms by the companies regarding NP and innovation. Customer feedbacks and comments on web platforms can be used by the companies in the process

of passive interaction Andreassen and Streukens' (2009), Though this approach is not a conventional one, the modern day consumerism is much indebted to the use of internet and technologies. Customers consider web platforms as a safe and secure environment where they can share their experiences, desires, and reviews. These can be used by the companies' indirectly in the generation of ideas as well as in better understanding the needs of the users.

Borgqvist and Lindberg, (2011) backed up this statement by mentioning that customers are more likely to be productive in sharing their experiences and interests when they are in a comfort zone. The web provides this comfortable environment for all of it can even being anonymous and exposing the truths. At the same time Borgqvist and Lindberg, (2011) signified on the need to reduce such face to face interviews and survey questionnaires with users in the NP and innovation. These are considered getting outdated and less productive in the modern days. Anyhow all the researchers agreed with the statement that the mode of engagement by customers interferes with the present structure of the company.

Yu (2012) stated that if companies need legitimate results from the involvement of customers in the NP and innovation, they have to be considered and treated as legitimate actors. Nambisian (2009) agreed to this statement by mentioning that companies need to find the involved customers even to the level of their employees, being a part of the organizational family for yielding better results. Lettl (2007) emphasized on the number of customers to be involved in the interaction. More than the level of interaction little focused on the number of customers to be involved in finding the suitable mode of interaction. The time frame for the involvement of customers is equally important as well.

Nambisian (2009) is among the pool of researchers who believed that customers have to be made a continuous part of the interaction process in NP and innovation. He mentioned that not just in the idea generation stage, but in the process of product design, prototype development, testing, market launch after sales support all, the customers have chosen for interaction has to be made part of. Customers are more experienced in sharing their needs with the companies, whereas companies have to initiate the need for innovation. For this purpose, innovation toolkits can be introduced into the interaction stages between the users and the companies. The toolkits ease the involvement of users in NP and innovation. It makes easier for the customers to deal with the needs associated innovation tasks whereas the company focuses on the solutions associated innovation tasks. Thus the whole idea of interaction becomes productive (Borgqvist et al., 2011). Antikainen, (2011) was having a dilemma whether consultation from the company side has to be done for customer interaction. In all cases, customers generate their own unique and fruitful ideas, whereas Alam (2002) stated that this could be even productive when the consultation is given. He mentioned the need for consultation in forms of discussions and meetings or face to face interviews. Alam also emphasized on the less significant of such modes as using focus groups, email or phone communication. He also stated that diverse modes could be used in the process of product innovation.

2.6.3 Long-Term Partnership

Long-term partnership is a form of business association with the elements of trust as well as a commitment to two firms or customers. The Studies states that the long-term partnership can yield benefits including reduction of uncertainty and enhanced performance (Ganesan et al., 2010). As per Lumpkin et al. (2010), a business partnership can yield considerably enhanced performance for the organization, which might lead to uniqueness, giving the organization a competitive advantage. They continue to argue that innovativeness mostly develops positively within an organization

where longer terms values are considered crucial. Many scholars have pointed out the significance of sharing vital information and interact with customers as well as suppliers for creating and exchanging value. More the information supplied by customers, they get more dependent. Most commonly the value information's exchange takes place when high technology innovative products development options need to be resolved (Aarikka-Stenroos and Jaakkola, 2012).

Various researchers have indicated that such a partnership entails increased commitment levels as well as the trust between both parties. Thus both of them are willing for providing resources in a manner which is fair as well as dependable to maintain and attain the aims of both parties (Handfield and Bechtel, 2002). If organizations intend to maximize in longer-term performance regarding customer satisfaction, it has to build, maintain and enhance long-term as well as mutually beneficial relationships with its targeted customers (Lin et al., 2010). Lin et al., (2010) defined longer-term partnership as a commitment among two firms. For the firms to attain their goals as well as develop positively, it is crucial for sharing similar goals values and to get committed to each other.

Theron et al., (2008) stated that shared goals as well as values are crucial and defined the long-term partnership as a commitment to continue providing resources as well as develop the longer term association. Communication is an essential element in building the long-term partnership. Without any informal or formal sharing of information, the partnership won't last (Theron et al., 2008). Sjöberg, (2013) defied the long-term partnership as working together with a strategy for attaining a particular goal that will enable every partner to have mutual benefits. In the modern day business world, it is a common to have partnered for cooperating in solving issues and to continue the business innovation process. It is also quite often these days to have strategies for firms for gaining resources from the customers or their suppliers (Lambert and Enz, 2012).

A long-term partnership with a firm and its customers aids many gains for both sides (Theron et al. 2008). Organizations implementing RM, in fact, enjoy the enhanced competitiveness, lowered costs of the transaction, lowered uncertainty, increased financial performance and enhanced marketing productivity (Li and Sang, 2011). Long-term partnership indicates a commercial association regarding trust and commitment among the two parties involved. In this association, both the parties got to have similar goals and follow the mutual benefits as per the reliable as well as the dependable base (Li and Sang, 2011). CRM is regarding the way to handle the association with customers and to support the long-term partnerships (Lin et al., 2010).

2.6.3.1 Trust

Alrubaiee, (2010) argued that trust is a crucial part of any successful relationships. As per Lin et al., (2010), if a firm has trust with its partners, it would give cooperation as well as an attribute in a long-term association. This improves the strength of the partners which is seen as an essentiality in business. Wu et al., (2012) proved that the characteristics of relationship are positively associated with trust. Also, trust is positively associated with the intention to stay. As such the strength of the organization and its customers is extremely important. Trust is crucial to having a proper relationship in place. Building relationship involves acquiring trust from both sides (Wu et al., 2012).

Personal collaboration between the customers and the organizations reduces the distance between them and enhances the trust between the parties (Friend et al. 2011). Also, trust has been studied in a similar context of the intention of customers of future purchases where trust has a crucial role in impacting the components which are central in the building of long-term relationships with customers (Friend et al. 2011). Past researches have shown that personal collaboration between customers and organization, usually guided by the CRM systems, decreases the distance between them and enhances

trust between them (Friends et al. 2011). As per Friends, et al. (2011) trust impacts the elements which are crucial in building long-term bonding with customers. Moreover, based on mutual trust and understanding, manufacturers can maintain close partnerships with their customers and are more likely to precisely identify customer demands and thus provide an acceptable pricing scheme, promotion activities, and retailing and marketing strategies (Li and Sang ., 2011).

2.6.3.2 Commitment

Commitment is a crucial concept for building and maintains associations (Chou et al. (2011; Morgan and Hunt 1994). Commitment can be defined as a desire that is enduring for maintaining a valued relationship (Chen et al., 2011). The organization, as well as the customer, has to have the same level of commitment to building a long-term relationship (Lin et al., 2010). A firm is maintaining a long-term relationship with a partner as very essential and makes all feasible efforts to keep up it (Hausman and Johnston, 2010; Chen et al., 2011).

Commitment takes place when the customer feels that they have a two sides trust with the company (Chen et al., 2011). It can also take place when the customer feels that it is not convenient or it is complicated for changing the company (Menon and Connor 2007). Menon and Connor (2007) stated that commitment preferably has to be based on the understandings of mutual trust. Anyhow, increased dedication from both the parties is a critical element when a strong relationship is being built (Frow 2007). Menon and Connor (2007) mentioned in their studies that CRM is critical to developing an effective commitment to the customers.

2.6.4 Joint Problem Solving

It can be defined as the co-participation of customers and organizations in the functional resolution of issues and in planning together as well as implementing enhancements in the business. The data also indicates the crucial nature of responsiveness in joint problem-solving practices. Lin et al., (2010) It identifies the collaboration between manufacturers and clients in solving a problem together and sharing obligations if they face difficult or unexpected situations in conventional terms joint problem solving is defined narrowly. It was mainly regarding the conflicts between the organization and customers.

Li and sang, (2011) classified joint problem solving as one of the many different resolutions means. There are anyhow many opportunities for the partnering organizations for engaging in joint practices with the aim of solving or ignoring or avoiding issues which are not precipitated by conflict or disagreement between the two parties involved. A good example of this type of practice is the enhanced involvement of suppliers as well as customers in developing new products (Chen et al., 2014). McEvily and Marcus (2005) did a modeling of the joint problem-solving in the embedded agreements context which enabled the acquisition of competitive abilities, where the aspects of joint problem solving builds trust and information sharing. Joint problem-solving transfers between the parties to develop particular relationship heuristics as well as specialized language for sending a complicated mass of knowledge. Exchange companies can, experience, and demonstrate the use of a capability used and receive responses; joint problem- solving plans allow a company to pull on the insights, knowledge, and ability that consumer and supplier companies have got with a capacity McEvily and Marcus (2005).

Joint problem-solving arrangements significantly enhance the learning that occurs in exchange relationships because rather than exiting the relationship when a problem arises; the parties work through the difficulty and receive direct feedback about activities and operations. This kind of relationship is particularly important for the transfer and development of capabilities. McEvily and Marcus (2005) Joint problem solving is defined as the interaction among organization and its customers in the solving of issues with a combined effort and responsibility sharing when there is an issue, complex or unpredictable situations arise (McEvily and Marcus, 2005). Joint problem solving exerts a positive influence on the product success as well as the development of the market.

Linnet et al., (2010) tested that it is easier for the organizations for enhancing product quality and technical ability of the process. In reality, this means that the customers voluntarily give aid in solving the issues related to technology or product design and development. Innovation is influenced by joint problem solving where it introduces the ongoing enhancements of the current products or services (Huang and Chang, 2008). Mainly this involves everything from well-established product design, markets as well as processes. Collaboration between the firm and its customers for problem-solving as well as sharing the responsibility together when an issue arises or tough or predicted situations arise (Islam, 2010).

As per Aarikka et al., (2012), organizations with proper joint problem-solving systems are in sound positions for providing sales after sales service and resolve any complaints from customers in a better way. It allows the organizations for understanding and responding to the in-depth and more critical needs of customers and lowers the inherent risks related to innovation (Maklan et al., 2008). The participatory method in co-development of solutions enhances the value of customers as well as yields for more returns than the conventional approaches as per the researching customer requirements

and responding sequentially with new product (Li and sang, 2011). Lilien, et al., (2002) proposed that a firm with useful association with their customer has a competitive advantage, as due to the synergy among them in association with the sharing of information and joint problem-solving activities.

2.6.4.1 Joint Problem Solving and Innovation Performance

Solutions for complicated innovation issues need more integration as well as a synthesis of diverse, complimenting knowledge as well as capability (Tiwana, 2008). For acquiring an innovative capability, a firm has to comprehend it (Mcevily and Marcus, 2005). Past research works propose that joint problem solving is crucial for capability as well as fostering value enhancement on firms relationships in supply chain management and relationship marketing (Song et al. 2010).

Joint problem solving is defined as the extent to which the parties to an exchange share their responsibilities for the maintenance of the relationship itself as well as for issues that arise as time goes on (Aarikka et al., 2012). Such systems typically involve the routine for solving issues, and they come in and negotiating the mutual adaptations needed for resolving the issue. Joint problem-solving systems promote the exchange of complicated and tough to codify knowledge for the enhancement of innovation (Mcevily and Marcus, 2005). Via joint problem solving, relationship particular process and language for the transfer of knowledge or information may be developed for reaching a mutually beneficial and satisfactory resolution for every issue (Mcevily and Marcus, 2005). Such systems give learning opportunities via the creation of a forum conducive to interaction and the exchange of knowledge regarding innovative capabilities. In partners searching for innovation, it is usually at first difficult for clearly envision the intended performance result. Different organization's managers might be having varying perspectives on what is an ideal solution for them, and things may

change varyingly from what is expected (Dougherty, 1992; Tiwana, 2008). Hence, although partnership opens up opportunities for getting access to the complementary know-how as well as technical abilities (Mowery, Oxley, and Silverman, 1996), their utilization which is coordinated at the level of organization is crucial for them to be converted into practice. Joint problem solving systems enables an organization for drawing on the inputs, experience and ability which the customers and supplier organizations have to develop forms of associating with disagreements as well as other contingencies of the business associations and in return to be enhanced in innovation terms, As the joint problem-solving extent increase, the collaboration and recognition of new information also increases, specifically regarding the needs as well as constraints which comes during the progress (Song et al. 2010).

2.6.5 Technology-based CRM

Technology-based is yet another component of CRM. In this study, technology refers to the Information Technology (IT) aspects of CRM. Lin et al., (2010) Technology-structured CRM involves manufacturer's utilizing computer technology to facilitate several CRM actions and actively provide technical assistance with clients, including data storage, data mining, and CRM software program systems. CRM actions revolve around technology applications in updating data source programs to raise understand and react to changing customer requirements and establishing sustainable relationships (Mohammed and Rashid, 2012).

Studies conducted on the effect of organizational information technology on performance pointed to the fact that adopting customer-centric strategy by organizations barely achieves the required goals with a lack of adequate information technology (Mohammed and Rashid, 2012). Firms that merge CRM with it information technology application generally have increased performance and client satisfaction that

effect on its general profitability (Oghojafor et al., 2012). Furthermore, one basic reason for incorporating technology structured CRM is normally its capability to enhance client satisfaction, increased loyalty, and most importantly making sure long-term relationships (Becker et al., 2009).

Mohammed and Rashid, (2012) stated that CRM tries to give a strategic bridge which links IT and marketing strategies aimed at raising long-term associations as well as profitability. This needs great information strategies. CRM may be considered as a set of form level and technological mechanisms which aims at deriving the needs of the customer, required product portfolios, market segmentation via the acquisition as well as storage of the related data of customers (Rajola, 2003). CRM in today's world is regarding the use of IT systems for capturing as well as tracing the needs of customers (Lin et al., 2010). Accurate data of customers is essential for the performance of CRM to be successful (Abbott et al. 2001), and consequently, technology has a crucial role in the performance of CRM (Boyle, 2004). In reality, the initial advances in IT enable firms with the capability for collecting, analyzing as well as sharing of information regarding customers as well as to attract and retain customers (Li et al., 2011).

Borsaly, (2014) stated that advances in technologies based on data including data warehousing, data mining, etc. are critical functionality and the effectiveness of CRM mechanism. Furthermore, Peppard (2000) The enhanced use of technologies by users, specifically the internet, is altering what is possible and expectations if association with customer management (Borsaly 2014). Companies adopt CRM information technology for the specific purpose of building and maintaining better customer relationships. CRM technology has the potential to constitute a sustainable competitive advantage. CRM technology can foster gathering, analyzing, and interpreting various kinds of customer data to enhance the relationship with the customer. Through converting customer information into usable data, CRM can increase the overall

performance of a company (Kim et al., 2012). Borsaly, (2014) adopt a similar look at and argue that information technology allow enterprises to manage individualized associations with key clients. As per Curly (1999) the CRM mechanisms consist of 4 major technology aspects as below:

- Data warehouse- contains contacts of customers, their transactions, and channel data.
- Analysis Tools- It examines the database as well as identifies patterns of behavior of customers.
- Campaign Management Tools- It enables the marketing team for defining the communications and in facilitating automatic generation of these communications.
- Interfaces for Operational Settings- For maintaining the marketing database as well as channels of communications for delivering messages.

The potential for IT to contribute to sustainable competitive advantage has been discussed amply. The main point here is that the CRM system plays a vital role in the context of leveraging CRM associated activities and hence contributes to enhanced organizational performance in the market, indeed CRM system is usually equated with CRM (Werner et al. 2004). CRM systems should support the organizations in tracking and managing the interactions with customers in a better way and organizations using technology for optimizing the interactions with customers; firms can develop a 360-degree view of their customers for learning from previous interactions for optimizing the future interactions (Borsaly 2014). Technology-based CRM means the organizations using various aspects of technology, specifically IT systems for facilitating CRM. This involves technologies such as data mining, data warehousing, etc. (Lin., 2010). Dyche (2001) suggested that organizations better utilize such IT systems for enhancing the efficiency of CRM mechanisms Technology improves the intellectual competence of CRM to a great extent. Adequate customer data is needed for the performance of CRM (Abbott et al. 2001).

Dutu and Halmajan (2011) stated that without proper implementation of relevant IT and other technological elements, CRM could be a failure. Technology allows the timely collection, process, and storage as well as retrieval of crucial information (Moriarty-Jones et al., 2008). Many studies have shown a positive impact on technology adoption on CRM's effectiveness. The ability of technology enables CRM makes it able for collecting, analyzing and storing patterns of customers, development of prediction models, respond timely, effective tailor-made customer interactions (Vrechopoulos, 2004). CRM systems can aid firms in understanding their customers in a more coherent manner as well in comprehensive ways as well as to better organize internal data for reducing the costs of production, aid sale team to sell with more efficiency and enhance the targeting of the campaigns in marketing. With the aid of technology, firms are also interacting more straight away with they're, utilizing them for collecting and assessing ideas and offers. Via capturing the mass amount of market intelligence, producers are able of providing fast responses to the requests of customers for innovation of the new product. On the other hand, as customers utilize web associated technologies for managing their association with other stakeholders including suppliers, it is more likely for them for participating in the process of product innovation. CRM enables lower cost operations with better quality. Most CRM systems focus on customer-centric activities (Sin et al., 2005) also accurate data is essential to the success of CRM.

Borsaly, (2014) Technology has a crucial role in CRM for adding to the organizational performance. IT features has enabled the conventional CRM to get advanced with such features as CIS, automated customer support processes, etc. (Ghodeswar, 2001). CRM aids the intensive information strategies which use IT for achieving the objectives of business (Harding et al. 2004). Lower costs and better quality of final products are the results of IT aspects of CRM including the data mining, data warehousing, JIT, and CAD. Without technology, CRM would have been a failure in almost every organization. IT supports the association of a company with its customers (DuÑu and Hālmājan, 2011).

2.6.5.1 Data Warehousing

Data warehousing is the most important of all the technologies used in CRM systems. A data warehouse is an information technology management tool that gives business decision makers instant access to information by collecting islands of customer data throughout the organization by combining all database and Understanding CRM operational systems such as sales and transaction processing systems, financials, inventory, purchasing, and marketing systems. Specifically, data warehouses extract, clean, transform, and manage large volumes of data from multiple, heterogeneous systems, creating a historical record of all customer interactions (Farzin et al., 2014).

A data warehouse can be defined as a location for storage of data which can aid in the report and analysis needs of various departments within the firm. The data may be time specific and provide historical information regarding the firm's business (Patriot.net, 2010). Data warehousing technology enables the possibility of CRM implementation; data can be gathered and manipulated easily. With such technology, analysis of a customer's data is made easy. It is possible for identifying as well as reporting by product or service, channels of distribution, customer group as well as individual's customers. Data warehousing technology makes CRM feasible because it consolidates correlates and transforms client data into consumer intelligence that may use to create a greater knowledge of customer behavior. Consumer data contains all product sales, promotions, and customer support actions (Farzin et al., 2014). One good example of data warehouse aspects is the customer, products, time and transaction.

2.6.5.2 Data Mining

Data mining is another crucial technology that is used in CRM systems. Data mining can be defined as a process of data analysis from various perspectives and summarize them into useful information. That is the information which can be used for revenue increase, reduction of costs or for both. Data mining in technical terms is defined as the process of finding correlations or these among numerous fields in huge relational databases (Anderson, 2010). The organization makes use of data mining technology for the determination of relationship among internal elements including price and external factors including the competition. Data mining makes it possible for organizations to determine the effect on satisfaction of customers, profit and sales figures, which are critical components to CRM (Akroush, 2011). Also, data mining is considered as a way for drilling to view the transactional data. It is used for predicting the future of specific behavior, as well as to identify the existence of a material or an entry in the database. It is evident that data mining is crucial for CRM, as it is via analyzing customer behavior that an organization can determine the marketing systems and strategies which includes advertising, designing, and promotions. The essence of CRM systems is that the organization has to integrate information with business action (Dyche, 2001). In managerial terms, it means that the idea has to be acted upon the customer management of their interaction at the points of touch in an efficient and effective manner. The data mining is a technique which usually addresses the issues of learning more regarding customers for making appropriate offers for them and to understand what strategies can be successful with them (Goldenberg, 2013).

2.6.5.3 Customer Information

It can be inferred that the CRM's technological dimensions are crucial as with the help of IT, a firm usually gets the ability for collecting the crucial information pertaining

to customers, storing it in the database of customers and then utilizing it for the market segmentation, targeting specific customers for particular segments, development needed for product portfolios, etc. Kincaid (2003); and Peppers and Rogers (2004) stated that the technology aspects of CRM could be widely classified into the flow of information, the capture of information as well as usage of information.

2.6.5.3.1 Information Flow

The flow of information is regarded as a crucial element of CRM mechanism (Peppers and Rogers, 2004). Sakunthala et al., (2011) stated that information flow is the extent to which an organization can have interactive communications with its customers. They also stated that organizations utilize technology as a key tool for improving the flow of information within many of their business units aiding their employees to understand better the ever-changing as well as increasing requirements and wants of their customers. Robert (2003) mentioned that information is one the crucial assets of a firm. Plakoyiannaki and Tzokas (2001) stated that CRM is fuelled by the flow of information which adds on to the generation of customer details. The flow of information is one the major dimensions in CRM of an organization which the firm has to use for realizing the customer's changing trends and behavior to maintain a long-term relationship with them.

2.6.5.3.2 Information Capture

Capture of information is another technological dimension crucial in CRM systems. It is specifically associated with the storage and preservation of the associated information about customers to the database of a firm. Canter (2002) stated that the capture of information could be referred to the firm's ability in collecting and storing the

relevant information about the customers. Micheawex and Gayet (2001) stated that storage of information or capture refers to the collaboration of data flowing from the touch points of customers into the database of knowledge. One crucial element of CRM strategy is the customer database of information. This is the baseline of any CRM mechanism. Plakoyiannaki and Tzokas (2001) mentioned that the formation which flows from the customer in the firm needs information selection as well as transformation for strategic as well as operational reasons. Also, acquisition of information refers to the collaboration of data flowing from the touch points of customers to the database of knowledge. As per Gartner Group report (2001), bad data is the main reason for the failure of most CRM projects. Bad data means no use of the same. As such CRM systems can fail and the whole investment made by the organization in the CRM project can go waste. This is the reason why scholars emphasize the need for collecting, analyzing and storing useful data. Also, proper tools for analysis need to be implemented for the analysis of collected data- to analyze the relationships and their quality (Canter, 2002). As such the capture of information is a crucial dimension in CRM systems (Canter, 2002).It can aid in the organizations having long terms associated with their customers in the long run (Canter, 2002).

2.6.5.3.3 Information Usage

Usage of information is an important component of CRM systems (Popovich, 2003). Information usage refers to the using information about customers for developing customer profiles, target market as well as segment. It also aids in the development of a product which can gradually aid in the business for retaining its users for the longer term. Chen and Popovich (2003) defined usage of information as the ability for using and analyzing data on user patterns, interpret the behavior of users, development of predictive tools, respond timely as well as effective personalized communication as well as give products and services value to the single customers. Information about CRM is

crucial in the tailoring of the product; serve innovation, consolidated customer views as well as the calculation of the lifetime value of customers (Peppard, 2000). Chen and Popovich (2003) stated that via understanding the drivers of customer and profitability; organizations could better customize their offering for maximizing the general value of their user portfolio. Companies that have come to this phase will gain from an interface of marketing-production. This results in the flexibility for facing the changes in the needs of customers efficiently as well as effectively (Prabhaker, 2001). Plakoyiannaki and Tzokas (2001) stated that transformation of information largely depends on analytical skills including data mining and base of individual customers. Data mining is the base process for the processes designed for identifying as well as interpreting data with the aim of discerning actionable trends as well as formulating strategies as per those trends (Goldenberg, 2002). Information about customers is collected from various sources, across the organizations which are put together in a usable format and provided at an adequate level throughout their organization. Once an organization starts to use the information about customers for making decisions, they may start to develop more complex modes for using the customer data. CRM utilized data mining for understanding how to reach to the customers and to communicate with them. Data mining is defined as the acquisition of the associated information of customers. Data warehousing is the storing of information about the customers in the data vas. Data analyzing is the use and analysis of information about customers as for the development of customer portfolios and product development, market segmentation, etc. Another name for information usage is data analysis. Canter (2002) mentioned that discovery of data enables companies for identifying their main customers and also in the development of their profiles. This data is also utilized in the segmentation of markets that are profitable. Together the good information pertaining to customers, data mining and technology allows the organizations for better understanding their users and gave effective communication with them. Usage of information refers to the usage as well as analysis of the relevant information pertaining to customers for predicting their behaviors, for developing customer as well as product portfolios, market segmentation which will be ultimately used for maintaining a longer term association with the

customers.

2.7 Product Innovation

This study focuses on product innovation. It refers to the developing and introducing a new product to the market or altering a current product in terms of its functions, features quality (Li and Sang 2011). Besides, (Acar and Acar 2012) described product invention as the importance and novelty of the brand new products which can be found out there at the proper time. Product invention can take benefit of new understanding or technology; contain the use and mixture of normal understanding and technology. Little changes in style cannot be thought to be product invention. (Atalay et al. 2013) Something innovation may be the introduction of an excellent or service that's new or considerably improved regarding its features or designed uses. This consists of sizeable improvements in specialized specifications, elements, and materials, included software, user-friendliness or various other functional features. Lau et al. (2010) further declare that product innovation could possibly be regarded as a measurement of the firm's capability to introduce services to the marketplace. This construct could after that be utilized to obtain information regarding firm's invention and measure their efficiency result (Lau et al., 2010).

A product innovation could be a new product for customers, to the generating firm, or for the market (Johansson et al. 2013), or it could be a current product that has been incrementally improved (Lau et al., 2010). The degree of the advancement offers been investigated, and it has been demonstrated that progressively improved products and highly impressive (new) products increase product overall performance, but that extremely latest product tend to provide a slightly better product performance. If a company would fully make use of their product technology, with the goal of increasing product functionality, it could be in creating ground breaking products that are not used

to the firm, the client, and the sector. (Johansson et al. 2013) Investigated the idea of product technology in a conceptual research, they discovered that the most used description of product innovativeness was product newness. Garcia and Calantone (2002) elaborated upon this definition, by presenting three regions of product newness: not used by the firm, not used to the client, and not used in the marketplace. Tung (2012) figured product innovation boosts a firm's leverage in an extremely competitive market. Product innovation is thought as forming new product category or applying small-level alterations to on-going products for the advantage of customers.

Product innovation is the introduction of a new product in the market that uses different technology and has a higher utility for the consumer than the existing products (Tung, 2012). Product innovation reflects performance derived from the significant improvements in technical specifications, components, and materials, incorporated software, user-friendliness, or other functional characteristics of the product (Toner, 2011). Given the fact that manufacturing firm's performance relies heavily on the introduction of new products and significant improvements in the functional or user characteristics of existing products, this form of innovation is regarded as a key source of competitive advantage.

Najib and Kiminami (2011) stated that organizations bring in product innovation for competing with other companies in the market and he mentioned that Product innovation is a crucial element which adds on to the organizational success. New product development and innovation of product is a critical strategy for increasing the share of the market as well as business performance. The researchers in the past indicated that development of new product has a positive effect on the firm's performance (Lau et al., 2010). Product innovations are implemented based on the market signals to create new markets. Damanpour et al., (2009) have argued that product

innovations depend heavily on international markets and their introduction is expected to generate new markets.

Product innovation can be defined as the creation of a new product from new materials (completely new product) or the alteration of existing products to meet client satisfaction (improved version of existing products) (Rosli and Sidek 2013). In addition, it identifies the intro of new services or products to create new markets or clients, or satisfy current markets or clients. Rosli and Sidek, (2013) Contend that product innovation could be created by exploiting new ideas. As per the findings of Camison and Lopez, (2010) product innovation can be considered as a crucial source of competitive advantage for the firm. Through innovation, product quality could be enhanced which in return enhances the performance of the firm as well as ultimately adds on to the competitive advantage of the firm. Companies bring product innovation for bringing efficiency into the business (Polder et al. 2010).

In today's highly competitive business environment, companies have to develop new products as per the needs of the customers (Ui et al. 2013). Companies introduce new products or modify the current ones as per the requirements of customers (Adner and Levinthal, 2001). Hoonsopon and Ruenron (2012) further developed this concept as the creation of a new product which will bring a different value to the market as compared with the previous products in the market. As per Roberts and Amit (2003) stated that the success of an organization is associated more with its history regarding innovation activities, than to the introduction of specific new products as well as processes. In a research work by Najib et al., (2011) it was indicated that innovation and performance of the organization are positively related and he mentioned there is a need to the investigation of innovation on business performance such as profitability, share of the market as well as growth. Innovation has become a crucial element when scholars try to identify how companies can be successful (Verhees and Meulenber, 2004).For

survival, growth and differentiate in the long run, companies have to continue their innovation (Westland, 2008).

Product innovation is the formulation of a newfangled approach to resolving problems of consumers (Goldenberg and Mazursky, 2002). Companies are forced for innovation by replacing products, creation of new ones or advancement of the existing products for meeting the needs of customers with the aim of pleasing them (Akers and Porter, 1995). Products with innovative characteristics admittedly can aid the company to secure more opportunities for growth and expansion which can bring in competitive advantages. In this context, many research and industry partners believe that by selling innovative products or services may improve the performance of business (Therrien et al., 2011). Product innovation consists of creation of a new product that technological aspects or intended usages differ from the ones made previously.

As per the Resource-based view theory for gaining competitive advantage, companies have to develop unique and useful capabilities in front of customers, on the strategies of innovation as well as competitive differentiation as well as the views of Resource-based theories on imitation or substitution, innovation is regarded as the crucial business capability which developed rare, and valuable products or services. In the modern day world, the innovation capabilities are broadly accepted as a vital element for the companies to withstand the intense market competition, by having a unique competitive advantage and in sustaining the same. Customers are regarded crucial source of product innovation. Innovation means a change in the design and features of an existing product or service or the complete development of a new one which is unique in its ways and serves the customers better than before. Various examples of product innovation consist of introduction of new products, improved quality, and overall performance enhancement. Product innovation together with the cost-reducing innovation is three various types of classifications of innovation which focuses on

developing the production approaches of a company. The innovation of product can be defined as the creation of a new product completely from raw materials new or the changes to a current product for meeting satisfaction of customers (Idota, 2015). It is also the introduction of new products or services to create new segments of customers or market or to satisfy the existing segments of customers or market (Wan et al., 2005).

Product innovation can be explained as a difficult mixture of market requirements and technology (Hoonsopon and Ruenron, 2012). It could be imaged as brand-new combinations and configurations of top features of the obtainable technology. However, it could be difficult for the business to become listed on technologies and marketplace possibilities since options should be made between style options, the probable clients and what the clients need (Westland, 2008). Westland, (2008) argues that successful innovators will need to have great insight into customer's requirements, technology developments, and marketplace segments. The fast adjustments and the unpredictable eyesight have made product innovation a significant weapon for businesses to be competitive and effective (Lee et al., 2012). In lots of companies, it is becoming essential to differentiate the business's products to survive out there. Collaboration with exterior sources is becoming one method of differentiating the company and be successful with product innovation (Faems et al., 2005). Companies may use clients or 1/3 celebrations as resources of product development. Collaboration with external sources have grown to be common for many businesses, to create value, receive new knowledge, design effective solutions, create client loyalty and maintain competitiveness on the market (Hakanen and Jaakkola, 2012; Aarikka-Stenroos and Jaakkola, 2012).

The product could be new in the marketplace or commercialized in a new way, which opens up for new users and customers (Hoonsopon and Ruenron, 2012). Product advancement is described as if an organization can be impressive and if the firm

launches new products to the market. That is measured through how a firm works with product innovation and how continuously they provide new products towards the market (Hoonsopon and Ruenron, 2012). Hoang, Paul (2010) stated that the product innovation could be classified as two- radical innovation and incremental innovation. The former innovation type aims are the development of a new product, whereas the latter innovation focuses on enhancing the existing products (Wong, 2014).

In this study, the main focus will be on the product innovation. Product innovation signifies the adoption of something that is not used to the business, market, and clients. A vast quantity of studies recommends that the introduction of a new product increases company performance (Löfsten, 2014). Product innovation could create positive influence on firm performance through increasing selection of products. Companies with differentiated products could gain competitive benefit on the market which becomes increase in firm profits. Furthermore to these, brand-new marketplaces could emerge with the launch of the brand new products. Damanpour et al. (2009) have discovered that product improvements are externally oriented and sensitive to market signals. The requirements of the marketplaces play an essential function in the implementation of that innovation (Damanpour et al., 2009). Past study has discovered various measurements of product innovation, such as newness to the firm (Lee and O'Connor, 2003), new to the market Lau et al. (2010), uniqueness (Henard and Szymanski, 2001), products line extension (Sethi, 2000), product improvement (Sethi, 2000), appropriateness (Danneels and Kleinschmidt, 2001), familiarity (Danneels and Kleinschmidt, 2001), brand-new tips (Rosli et al.,2013) product superiority to the client (Lee and O'Connor, 2003), and adoption problems to the client (Lee and O'Connor, 2003). Of the newness to the company and newness to the market have been most regularly found in the innovation (Danneels and Kleinschmidt, 2001).

Product innovation has been described when it comes to the firm's utilization of products that are not used to the company and/or not used to the marketplace (Booz, Allen and Hamilton, 1982; Cooper and Edgett, 1999; Danneels and Kleinschmidt, 2001; Kleinschmidt and Cooper, 1991; Olson et al., 1995). New-to-the-firm products are those utilized by the company for the very first time, even if additional companies for the reason that market may currently offer similar products. New-to-the-market products are the types that are beginning their kind on the market. The company itself could produce those products or used (and adapted) from companies in other marketplaces and industries. This implies two things; the first is that the true innovativeness isn't centered on the product development itself but the utilization of the innovation of the product in a specific marketplace (Han et al., 1998). The second reason is that these types of product innovations utilized by the company may possess different results. Although new-to-the-firm products and new-to-the-market products are both types of product creativity, using both of these types of creativity is presumed to create different responses to the antecedent variable and influences on the results variables. Importantly, the firm's capability to use new-to-the-market products takes care of regarding sales development, relative price high quality, capability utilization, and, subsequently, company profitability while new-to-the-firm products usually do not contribute to these effects. The need for using new-to-the-market products is usually further emphasized through the solid and results on sales development and capability utilization on company profitability. Generally, the use of new-to-the-market products is connected with both the firm's and the customer's experience. To make use of relevant market experience, the organization needs to gather extensive market knowledge through knowledge generation, and market experimentation (Atuahene-Gima, 1995).

Product innovativeness can affect the firm's product sales since customer buys products offering superior value and so are exclusive to users and stand for an advantage over competing products. Hence, clients who experience products that satisfy their needs will probably buy more often and in higher quantity and buy other products and services

provided by the company (Anderson, Fornell, and Lehmann, 1994). Accordingly, product sales development is assumed to become a reward for utilizing new products or product creativity in attractive to market (Narver, Jacobson, and Slater, 1993). New-to-the-market products are often even more adapted to the marketplace than new-to-the-firm products because they offer benefits that aren't available from rivals. Therefore, the utilization of new-to-the-market product may attract even more clients to the company than new-to-the-firm product, although both types of innovativeness are advantageous to the company. The new to the market does not always mean new to the company because some products can have same structure as the old models and innovative part is in software or just some parts of the new products. In this research will examine, introducing two areas of product innovation: new to the firm, new to the market (Garcia and Calantone, 2002).

2.8 Business Performance

This research has adopted on the performance of business. Business performance is defined as the performance of a business which is measured by key measurements. These performance's operational measurements are associated with the success as well as profitability of products as well as services; mix of products as well as their portfolios; output as well as productivity, etc. (Yang, 2014). Chen et al. (2009) subsume revenues, profits and market share under the single construct business performance. Many definitions of the performance of firm have been suggested in many studies in the past (Barney, 2007), with most of them frequently referring to the efficiency and effectiveness of a company in utilizing its resources in the generation of economic results. Artz et al. (2010) conducted a longitudinal research on the effect of patents gained and product innovations on the performance of firms in various sectors in the US and Canada. Their findings suggested that product innovation significantly affects the performance of the company. Therrien et al. (2011) explored whether

innovation effects on firm performance in chosen industries in service sector. The findings show that to have more sales from innovation, companies have to penetrate the markets early or to deliver new products with increased novelty levels. Gunday et al. (2011) studied the impact by the four innovations- product, process, organizational and marketing on various elements of performance of the firm, including attainments in manufacturing, finance, and marketing via an empirical research covering the manufacturing companies. Croteau and Bergeron, (2001) measured the company's performance by their ability for making profit and by their growth in sales.

Varis and Littunen (2010) argued that the ultimate reason for companies to activate in innovation actions is to boost firm functionality and success. Laforet, (2011) proposed that performance of business referred to the rate of maintenance of customer, rate of success of NP, sales growth, ROI and general performance of a company when compared to others in the market. Fullerton et al., (2009) measured the performance of the overall performance of the business, rate of profit, sales and well as share of market. Companies via the corporate efficiency, growth as well as share of market as well the ability for making profit. Performance of business is operational zed as a mix of 3 measures- sales volume, share of market as well as profitability (Najib and Kiminami, 2011).

The components of performance of production are quality enhancement, efficiency in cost, speed to manufacturing and flexibility in manufacturing. At last, the performance of products in the firm level achievement concerning the reduction of cost, enhancing quality, speed to reach the market as well as manufacturing flexibility. The performance of production results in the firm directly achieving profitability (Gunday et al. 2011). The key reason for innovativeness is the desire of firms to obtain increased business performance and increased competitive edge. Alam et al. (2013) have found that firm innovation has greater influence on business performance, also he probed the

impact of innovative activities on the corporate performance by the measurement of sales revenue, share of market as well a rate of profit.

2.8.1 Business Performance and Measurement

As per Najib and Kiminami, (2011) performance of business is operational zed as a mix of 3 components- sales volume, share in the market and profitability. Growth in sales measures the increase in a company's number of units of service or product sold within one year relative to the past years; sales volume is the number of units sold within a specific time period in a year relative to the same period in the past year and finally profitability measures the returns in terms of cost's percentage. Profit measures the overall revenues minus the complete expenditures (Yang, 2014).

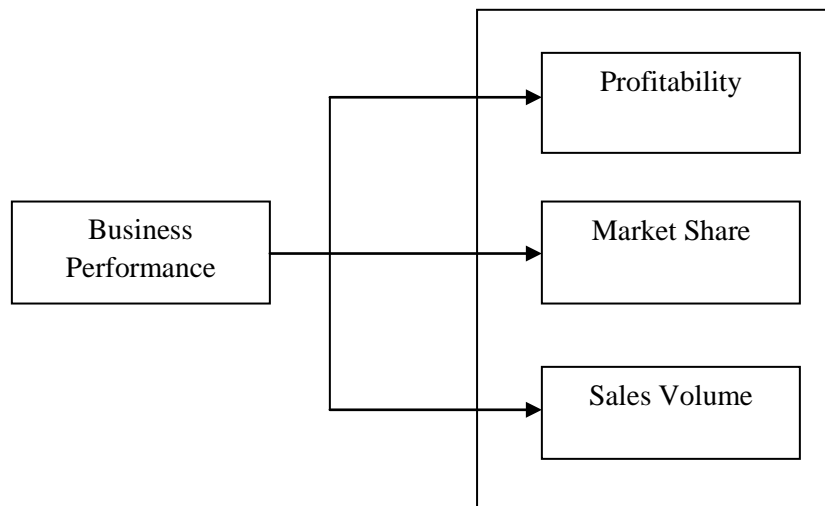


Figure 2.1 Business Performance Measurements
Source: Dawes (1999) Najib and Kiminami (2011)

2.8.2 Profitability

Eggert et al. (2014) stated that profitability could be measured in any business by using a ratio which is gathered by dividing the net profit by total assets. Profitability hence is the ROI and is associated more with the concept of efficiency and is less related to effectiveness. Yang, (2014) has defined profit as deducting the expense of a company from the revenue it earned. Profitability is the customer profitability which one firm can gain over a specific period. This profitability is the result of minimizing the cost of an organization as well as enhancing the revenue which can be attained. Product invention relates positively to revenue growth (De Faria and Mendonça 2011) and profitability (Cozza et al. 2012).

Aas and Pedersen (2011) find no effect of product innovation on company profitability and profitability growth. Product innovation is an effective source of this competitive advantage (Bowen et al. 2010; Calantone et al. 2010) positive impact of product innovation on revenue growth. Furthermore, consistent with earlier studies, that product innovation is an important driver of firm profitability. Although the advancement of services could be a cost-intensive and dangerous undertaking, product improvements have already been proven to create above-average income (Artz et al. 2010). Cozza et al., (2012) investigated the relationship between product invention on the financial performance of companies (in conditions of profitability and development) using a huge sample of Italian companies operating in Moderate industries. Innovations just have got a transitory influence on firm's profitability by raising its competitiveness in the short-run. The innovative product gives to the firm a power and allows it to exploit higher profits by increasing the firm's market share until other firms can imitate the innovation.

2.8.3 Market Share

O'Regan (2012) defined market share as an organization's sales in association to the total sales in the industry for a specific period. Pearce and Robinson (2011) also used this definition that the market share is the sales associated with those of other competitors in the same market. It is an element used to express the competitive position in the market. It is widely accepted that the increase in market share can be equated with success whereas lowered market share is a manifestation of the actions that are unfavorable by the company and equated with loss (O'Regan 2012). Increased market share is associated with increased profits. Market share increases can enable a firm for achieving many sales in its operations as well as enhance profitability (O'Regan 2012). Market share is calculated by taking the firm's sales over a specific period of the time and then by dividing it by the industry's total sales over the same period of the time. Companies with large market share result in higher profitability.

Ayca and Winsor (2010) summarized that it is, in fact, the role played by the market share in the reducing of cost, instead of creation of market power which generates the link between profit and share. Ng and Kee (2012) in their conclusion argued that firms with increased market share behave much different than others. It was indicated by Ganna, (2013) that companies with innovation are able for achieving large market share and also increase rate in growth and profits. Innovativeness is one of the fundamental instruments of growth strategies to enter new markets, to improve the accessible market share and also to provide the organization with a competitive edge. New product development and product advancement is an essential technique for increasing the marketplace share and functionality of the business enterprise (Ul et al. 2013).

2.8.4 Sales Volume

The volume of sales is the sum of the number of elements including the gross sales returns as well as delayed billing. Sales volume is the central interest of every firm which is based on sales as well as profit. When volume increases, everything can be managed. At the same time when volume goes down, it is tough to manage the parameters of business. The organization is managing as well as directing its volume of sales via the portfolio and channel. Bahadir et al. (2009) conclude that innovation is among the most constant drivers of organic and natural sales volume. (Rubera and Kirca, (2012); Rosenbusch et al. (2011) Show that process, and product development may have different effects on sales and firm profitability. The effects of innovations on firm performance differ in a wide spectrum of sales, market share and profitability to productivity and efficiency (Tuan et al., 2016).

Rosli and Sidek, (2013) investigated the relationship between firms' performance and its familiarity with innovation and research. They found out that the firms' inclination to innovations was of vital importance in the competitive environments to obtain higher competitive advantage. The observed direct effects of innovations on firm performance are relatively small, and the benefits from innovations are more likely indirect. Regardless of the weak hyperlink, they discovered, (Tuan et al., 2016) associated innovations with an increase of firm sales; plus they argued that organizational improvements instead of technological innovations were an essential aspect for total product sales.

In strategy research, a commonly mentioned (and examined) assumption is certainly that competitive benefit is obtained through the launch of novelty or newness, as clients are more ready to pay unique services and products. This acts as the fundamental logic for linking product innovation with economic efficiency indicators

including product sales growth (Ganna, 2013). A steady stream of innovative products allows firms to get early cash flows, to improve external visibility and also to gain market share early (Rosli, 2013) Regardless of the weak link they found, Lin and Clausen (2013) associated innovations with increased firm sales; and they argued that organizational innovations rather than technological innovations appeared to be the most vital factor for total sales. However, Laursen, (2012) ensured that innovations boost product sales by increasing product intake and yield extra profit to companies.

2.9 The Relationship between Social Media, CRM, Product Innovation and Business Performance

2.9.1 The Relationship between Product Innovation and Business Performance

Product innovation is a critical source of competitive advantage for the companies (Camison and Lopez, 2010). Change in current products for meeting innovation as a crucial determinant of performance of business in a changing environment of tough competition. Bueno and Ordonez (2004) performance of business is associated with the organization's ability for gaining profit as well as growth to attain its general strategic aims. Lin and Clausen (2013) stated in their studies that there is a considerable link between the growth in sales and innovation of the organization. Najib and Kiminami, (2011) Argued that the positive relationship between innovation and performance is seen in business. Another study by Varis et al., (2010) pointed out that the innovativeness of the firms is positively associated with the performance of the organizations regarding market share, growth, and relative profitability. Ul et al. (2013) indicated that considerable effect of innovation on a broad range of business performance measures, including the market share and ROI. Also Najib and Kiminami (2011) Certain researchers have found that there is a considerable relationship between innovation and growth in sales as well as profitability .



Figure 2.2: The Relationship between PI and BP

2.9.2 The Relationship between CRM and Business Performance

Thompson, (2008) stated that management of CRM efficiently could enhance the performance of a firm. Coltman et al., (2011) at the same time argued that a proper CRM strategy can improve sales by enhancing relationships with the customers, thereby increasing loyalty of customers. As per Kim et al., (2012) is it crucial for identifying activities of CRM which generate profitability as well as successful performance of the organization. Smith and Chang, (2010) stated that the impact of CRM has on profits is a subject of conflict between researchers. There are many different CRM activity types that organizations can adopt. It is crucial to explore the way in which each activity impacts the business performance and its profitability. CRM is vital for organizations for understanding to maintain a long-term association with the customers and enhance profitability of the organization. Smith and Chang, (2010) analyzed the impacts in economic terms of bringing CRM system into business. Most other scholars also sustained the reason and effect of CRM as well as profitability. Datta and Christopher (2011) concluded in their study that an information sharing system has a considerable impact on all organization's performance.

As per Akroush et al., (2011) CRM implementation can enhance the profits as well as market share of products as well as services. Tiwana, (2001) stated that the

implementation of CRM activities aids the organization in improving customer relationships and also to gather more profits from their actual customers. Borsaly, (2014) Stated that customer profitability is the capability of building customer relationship and capturing the customer's value for the benefit of the firm. Business profitability in CRM system is a potential in business for making profit by following or implementing CRM system in the firm, i.e., getting sales revenue by efficiently utilizing the resources of a firm resulting from the successful adoption of CRM system via creation of value for them and maintenance of long-term association. Many authors have mentioned regarding the objective of CRM in a firm regarding profitability. CRM is increasingly critical for firms as they search for enhancing their profits via long-term association with customers. Companies that have powerful associations with customers have a higher profitability (Bolton 1998; Reinartz, Thomas, and Kumar 2005). In fact, many organizations have customer portfolios where profitable and valuable customers are identified. These customers will be communicated with on a regular basis and will have their products and services mostly customized for these customers to satisfy their desires (Mohammed et al. 2014).

Akroush et al., (2011) defined market share of the business particularly in business regarding CRM systems as the identification of new market as well as channels of expansion, enhancing value of customers, their retention, and satisfaction. Dutu et al., (2011) Stated that CRM mechanisms improve the ability of sales team for collaborating internally with the friends and communicate properly with the customers. Sales oriented CRM system is developed for aiding the sales team for managing CR via improving communication; learning more regarding the needs of clients and creating more personalized solutions for the customer (Wu and Lu, 2012).



Figure 2.3: The Relationship between CRM and BP

2.9.3 The Relationship between Social Media and Business Performance

Kushan, (2009) stated that social media aids a firm to reach out to the customers easily and faster. Competition can be scaled out, and enhanced efficiency and lower costs were reported with networked firms using social media collaboration (Harris and Rea, 2009; Eisenfeld and Fluss, 2009). Social media collaboration improved performance of business (Wetzstein et al., 2011). Various applications of social media collaboration in business aid the enhancement of branding, after sales services, customer care, etc. (Culnan et al. 2010). Many SMEs and MNCs are now a day's using the benefits of social media collaboration (Andriole, 2010; Bell and Loane, 2010). Many firms use social networking sites such as Facebook for continuous communication and interaction with their customers (Ling 2013). Many organizations have their official web pages and social networking site presence where the customers and potential customers interact with them. The organizations are investing into these unconventional web platforms for interacting with their customer communities (Hardy 2012, Power 2013, and Wessel 2011).

Yang et al. (2012) stated that firm's value and performance of business increases with positive engagement in social media channels. Dyer (2013); Mueller (2011) Studied the effect of action of customers on social media on the performance of the firm.

Mainly a study by Luo et al. (2013) actions of customer on web platforms can influence the performance of organizations. Social media is mainly perceived as an extremely important marketing and communication channel, which not impacts the groundbreaking of a company, but also its profits (Hanna et al., 2011; Kaplan and Haenlein, 2010; Kietzmann et al., 2011 and Vernuccio, 2014).



Figure 2.4: The Relationship between SM and BP

2.9.4 The Relationship between Social Media and Product Innovation

Social media websites can be engaged in activities of co-creation which results in more benefits for the company, the initial effect of social media on the innovation's success is uncertain though. Customers are crucial in value co-creation by collaborating with companies. Kärkkäinen et al. (2010) investigated the relationship between social media and innovation. While less than 6% of the surveyed firms included social media in their innovation, about 50% of them saw social media as a tool with which customer demand could be discovered, and 29% indicated that social media could aid in product development.

Idota et al., (2011) analyzed 3,000 Japanese firms and found that the increased use of social networking sites positively impacted product innovation, with larger effects in the service industries than in the manufacturing sector. Numerous benefits from using social media in the innovation process, such as better product ideas, an increase in

customer orientation, quality improvements, a reduction of time and costs of product development time, and improved product adoption, leading to growth of market share, margins and revenue (Idota et al., 2011; Kalypso, 2011; Kärkkäinen et al., 2010). As per Kenly and Poston, (2011) performed a study on 90 manufacturing companies and found out that nearly half of them used social media in some stages of product innovation and development. The key reported benefits from this collaboration via social media are more and enhanced product ideas, reduces costs of product development, faster accessibility to market, enhanced speed in product adoption, reduced costs of products and that of developments. Kalypso found that nearly many manufacturing firms are using social media collaboration regarding product innovation and development. Similar results were found in the study by many scholars (Kenly and Poston, 2011).



Figure 2.5: The Relationship between SM and PI

2.9.5 The Relationship between CRM and product innovation

Good CRM among manufacturers and customers not only retains its customers but also motivates customers to provide critical suggestions for enhancing the firm's products or services (Ramani and Kumar, 2008; Ghafari, 2011). CRM aids the organizations to fine tune their knowledge regarding preferences as well as interests of customers. CRM's effectiveness and efficiency are increasingly considered as a mean for the development of innovation capability as well as for providing a long-lasting competitive advantage for the organization (Sahay and Ranjan, 2008; Ramani and

Kumar, 2008; Pesämaa 2011). Ramani and Kumar (2008) proposed the use of CRM for engaging in the creation, maintenance, fostering of useful customer links as well as in maintaining the long-term partnerships between the manufacturers and customers. Intense collaboration with customers allows the customers to give valuable feedback to the manufacturers regarding innovation (Amelie, 2013). Hence organizations who gain crucial information from their customers are possible for enhancing their innovation by meeting the needs of their target market segment.



Figure 2.6: The Relationship between CRM and PI

2.10 Underlying Theory

Based on many previous studies in this area, the most dominant among theories in this area is the ‘Social Exchange Theory’ and ‘Resource Based View (RBV) Theory’ following the above discussion; the major theories for this study are explained in the following section:

2.10.1 Resource Based View

Resource-based view (RBV) theory supports the aspect that superior business performance is attained only when the organization has valuable capabilities as well as resources that are available as a source of sustainable competitive advantage (Wernerfelt, 1984; Barney, 1986; Peteraf, 1993). RBV uses the internal characteristics

of firms to explain their heterogeneity in strategy and performance (Camisón and López, 2014). According to the main assumption of RBV; only firms with certain resources and capabilities with special characteristics will gain competitive advantages and, therefore, achieve superior performance.

Product innovation would be source of competitive advantage and also as a determinant of firm's success. Its performance indicates portion of overall firm's performance based on the effective use of firm's resources (Bakar and Ahmad, 2015).

According to RBV, these different types of ties may be regarded as valuable, unique, and intangible resources that are difficult to imitate, thus giving firms possessing such ties a significant advantage in developing innovative products (Gudda et al., 2013).

According to Resource-based theory, to gain competitive advantage, businesses need to create unique and valuable capabilities in the eyes of customers. To sustain created competitive advantage preventing imitation and substitution of these capabilities are required. In order to protect the firms return from the effect competition Walker, (2009) he considered view on competitive differentiation and innovation and the views of Resource-based view theory on substitution and imitation, innovation is found to be the most important business capability which creates valuable, rare, inimitable (or costly imitable) and non- substitutable product/services. A study by Zhang et al.,(2009) adopted the RBV theory to explain the relationship between the product innovation and business performance. They maintained that resource-based view of the firm suggests that new product development can be regarded as distinctive intangible resources that can give rise to competitive advantage. Therrien et al., (2011) stated that efficiency and efficacy- two aspects of product innovation were related powerfully to organizational performance.

According to the resource-based watch (RBV) theory, business is a compilation of tangible and intangible assets like physical living, technology, customer

understanding, service, relationship, etc (Alamgir and hamsuddoha, 2015). Which are comparatively extraordinary and hard to reproduce quickly by the rivals (Srivastava et al., 2001). Likewise, Coltman (2007) argued that the RBV provides a multi-dimensional viewpoint of CRM since it tries to web page link better company performance with obtainable resources and features. Relationships considered getting the sources of the company (Hall 1992) and therefore customer relationships, specifically, may also be thought to be sizeable resources that may considerably influence the efficiency of the company. Customers are beneficial and rare assets for the company where relationship with clients is difficult to reproduce, and tremendous literature linked to CRM is based on this postulation (Gouthier and Schmid 2003). Also, they opined that interactions permit businesses to get each other's assets like understanding and relational assets can be a way to obtain long-lasting advantages as they are difficult to develop (Alamgir and hamsuddoha, 2015). From the previous literature (Sin et al. 2005; Eid, 2007; Becker et al. 2009) it is obvious that CRM is a multi-facet notion which is also justified by the resource-based view (RBV) as this view opines that effective CRM implementation and deployment needs an integrative approach.

RBV views the company as selections of unique reference and capacity pools that, if used distinctively, may be employed to produce and preserve competitive advantage (Richard et al., (2014). The RBV is an appropriate multi-dimensional perspective for CRM implementation because it links superior firm performance to a firm's resource and capability pools (Coltman, 2007). Xu et al. (2002) stress that maintaining customer relationships through CRM is the only competitive advantage of the modern era. Sulieman and Faraj, (2016) state that firms need five capabilities for successful CRM implementation: information sharing, customer involvement, joint problem solving, long-term partnership and technology-based CRM. Technology-based CRM based on RBV theory emphasizes the use of organizational resources and capabilities for enhanced performance (Barney and Delwyn, 2007). As such technology is crucial is CRM success. Based on the resource-based view theory, CRM technology

can be considered as one of the important organization's resources that can be used to improve overall business performance (Barney and Delwyn, 2007).

This study is grounded in RBV theory which claims that organization's resources lead to competitive advantage (Tung et al. 2014). As mentioned earlier, product innovation is unique for organizations that categorize its resources into sets of (intangible resources and organizational resources) to facilitate such resources in a way which leads to competitive advantage. Hence, product innovation as a system is unique to manufacturing organizations as one of their organizational capabilities that can bring significant effects on its business performance. In particular, this research maintains that competitive advantage, as reflected through improved business performance, can be achieved through the allocation of resources towards CRM. By adopting the theory of Resource-Based View, this study identifies the set of resources (physical existence, technology, customer knowledge, service, relationship) that contribute to the success of product innovation.

In this research according to the Resource-Based View theory, technology-based CRM is technological and physical resources; long-term partnership and customer involvement are related resources while information sharing and joint problem solving are the customer knowledge resources of the firms.

2.10.2 Social Exchange Theory

Social exchange theory is regarding the interpersonal interactions based on cost-benefit. Tim Delaney, (2016) defined social exchange as the exchange of activity, tangible or intangible, and more or less rewarding or costly, between at least two persons. The theory is based on the competitive advantage which is subjective. Both

organization and customers assess their benefit of engaging in the relationship (Wikstrom, 1996).

Social Exchange Theory in this context seems appropriate as it has similar characteristics to Social media and allows studying mutual beneficial situations and value creation for both parties. Thus, some mutual exchanges improve the quality of the relationship between the exchange parties, which therefore produces beneficial and productive behaviors. One of many contexts in which the social exchange theory has been applied is online communities to study user behavior and their motivations (Füller 2010; Hemetsberger and Pieters, 2001; Kollock and Smith, 1998). The social exchange theory seeks to explain that, Individuals engage in a series of interdependent interactions that generate obligations among the exchange parties (Mitchell, Cropanzano, Quisenberry, 2012). According to this explanation, a valued and beneficial resource is offered by one party, which results in an obligation of the other party to give a beneficial resource in return. Social exchange theory could be valid paradigms for studying and explaining how people form systems, express their views, and pass info to one another. Social exchange theory comes from studies discovering exchange between individuals or groups (Emerson, 1976).

The social exchange involves the reciprocal transfer of goods, both tangible and intangible, such as practical help, advice, and information. Braun (1993) observes that 'exchange of scarce resources is a fundamental feature of economic and social life. Social exchange research has focused on the issue of power differences in networks of exchange relationships. In experimental studies, participants exchange resources are typically representing a certain monetary value, and power differences are measured as the payoff differences between actors arising from exchange. The majority of experimental studies focus on the distribution of power in static and exogenous networks (Dogan et al. 2009). A milestone in this field is the work of Cook et al. (1983), who

show that standard centrality measures badly predict power distributions in exchange networks.

According to Stafford (2008) Social exchanges theory, communicate with customers and firms. Firms involve customers in the development phase to receive valuable information about the customers' experiences when using the product/service and communicate the customer in the development might reduce risks of failure and a product/service that corresponds to the market need (Cheng et al., 2012; von Hippel, 1988) . Social exchange theory is to gain an understanding of the nature of consumer's resource exchanges in an online community of interest.

One of many contexts in which the Social Exchange Theory has been applied is online communities to study user behavior and their motivations (Füller, 2010). Participation is contingent upon whether the perceived benefit is achievable with reasonable expended effort (Füller, 2006). Thus, an interaction has to be rewarding to each participant in the social exchange (Füller et al., 2006).

Considering that all social media are dependent on users providing content material, an understanding of the motives of why individuals participate appears fundamental (Mitchell, Cropanzano and Quisenberry, 2012). The previous researchers as Füller's (2010) have focused on the interaction between customers based on individuals' motives, and this research study aims to identify the company's requirements or more specifically the expectations and requirements towards the facilitating such interaction.

In this research based on the social exchange theory, external factors of the organizations such as customer motivation, customer collaboration, E-word of mouth in social media are implemented aimed with the goal of reaching to business performance.

2.11 Chapter Summary

Chapter 2 outlines the studies that have been carried out on this topic which focused on theoretical as well as theatrical framework derived from different viewpoints. The major aim of this chapter was to deliver a general conceptual view for every constructs to be evaluated in this research, such as the motivation of customers, collaboration with customers, EWOM, sharing of information, involvement of customers, longer term relationship, joint problem solving, CRM based on technology, innovation of product, performance of business. Foundation of the study is based on the relevant theories, which are also discussed in this chapter. The chapter three will explain the methodology of research that suits this research and development of hypotheses and also the construct's operation.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter discusses the research methodology consists of research paradigm, research Design, research instrument development, selection of sample research methods for data collection and analysis, the development of instrument used in this survey and the operationalization of research constructs, pre-test and pilot study conducted also by sample selection criteria are presented in the following. The data collection process and methods for data analysis are described.

3.2 Research Paradigm

Kassim (2001) referred a paradigm as approach basic a methodology of research where knowledge values are examined, whereas the methodology explores on the practicalities of how we can arrive at the knowledge. A study paradigm considers as a strategy which is holistic and basis for a study methodology (Kassim, 2001). It affects the knowledge philosophy while the methodology concentrates on practicalities and the way that can arrive at this knowledge (Trochim, 2006). Saunders, Lewis, and Thornhill (2009) divide analysis philosophy into 4 different clusters namely; positivism, interpretive, pragmatism, and realism. This study adopted positivism philosophy, which refers to verifying knowledge through measurement of phenomena or direct observations (Krauss, 2005).

This study considers as deductive since it has predetermined theory-driven from the available literature, which is going to test the hypothesis. This study starts with data collection and analyzed data gathered from different sources, including exploratory research, literature and continue with the second step, which is structural equation modeling for surveyed data (Kassim, 2001). Proposed hypothesis investigates between Social media and CRM, product innovation and business performance.

3.3 Research Design

According to Burns and Bush, (2002) explained the Research design as advance decisions which makes up the master of plan specifying for collecting the methods and procedures and analyze the information needed. The data type, the data collecting methodology, techniques of sampling, the budget and schedule (Hair et al., 2010). Since a few studies have been done in this area, and it could help to understand the nature of the problem (Sekaran, 2010). Essentially, it assists to streamline the sequenced method for the research problem (Churchill and Iacobucci, 2004; Malhotra, 1999). Research designs categorized in three, include: descriptive, exploratory and explanatory (Churchill and Iacobucci, 2004). According to Burns and Bush (2002), this is a common reality which usually, researchers utilize varies designs of research. The study could probably be started with an exploratory study that provides required information that precedes descriptive research. The info on a descriptive research can be a precursor for a causal experiment (Hamid, 2007). In this study commences using an exploratory phase, in Phase I that prepared whole vital background info needs prior to the descriptive in phase II. After descriptive study achievement, the study will comprehend prepared for check the causal relationship in Phase III.

Phase I: According to Malhotra (1999); Parasuraman (1991), there is required to make an initial understanding in order to offer a clear path for every study. In this study,

Phase I begins by an exploratory phase. The exploratory research is performed to exactly define the problems and to ascertain any specific goals for the study. Research of Exploratory is the base of credible research (Churchill and Iacobucci, 2004) because of its flexibility and is qualitative (Burns and Bush, 2002). Besides being a Precursor to further studies (Malhotra, 1999). Product innovation is almost unknown and weak in Malaysian manufacturing companies, and there is negligible empirical proof to help business to understand CRM and social media. Few studies only have been done in CRM and social media in manufacturing companies in Malaysia, and there is negligible empirically proof to assist performance of businesses through product innovation. Therefore, the research of exploratory will be preparing the essential information background information which performs such as a precursor for Phase II of the study.

Phase II: After acquisition significant preliminary information through a study of exploratory, the study goes toward a phase of descriptive research. Versus to research of exploratory, a descriptive research is organized along with higher strength (Churchill and Iacobucci, 2004). The purpose of conducting a descriptive research is that explain the particular features of the topic under research (Robson, 2002). Base on Aaker et al. (2000), it does also help in identifying the associations between two variables Descriptive study designs is quantitative (Churchill and Iacobucci, 2004) are performed as cross-sectionally or perhaps longitudinally.

Phase III: Eventually, after the research of descriptive, research of explanatory will be conduct. Based on (Saunders et al., 2009), a research of descriptive can be additive or a pioneer with an explanatory study. However research of descriptive might show a relationship between two variables are related, it is, however, inadequate to examine the reason and influence relationships (Malhotra, 1999). Explanatory research is the most suitable research design, while the study investigates the association between the cause and forecasted influence (Hair et al., 2010). Since in this research examines the

relationship between CRM and Social media on product innovation and Business Performance. It is essential to produce the evidence type for developing causal inferences between the study variables (Parasuraman, 1991). Saunders et al., (2009) known as such research descriptor-explanatory researches. That will put it simply, in this study evaluates the explanatory strength of Customer Relationship Management (CRM) and Social media on product innovation and Business performance in Malaysian Manufacturing companies. Based on Malhotra, (1999); Babbie, (2001); Burn and Bush, (2002), by survey a theoretical model, quantitative research techniques is much suitable than a qualitative research. Therefore, in this research has used a quantitative research.

3.4. Theoretical Framework

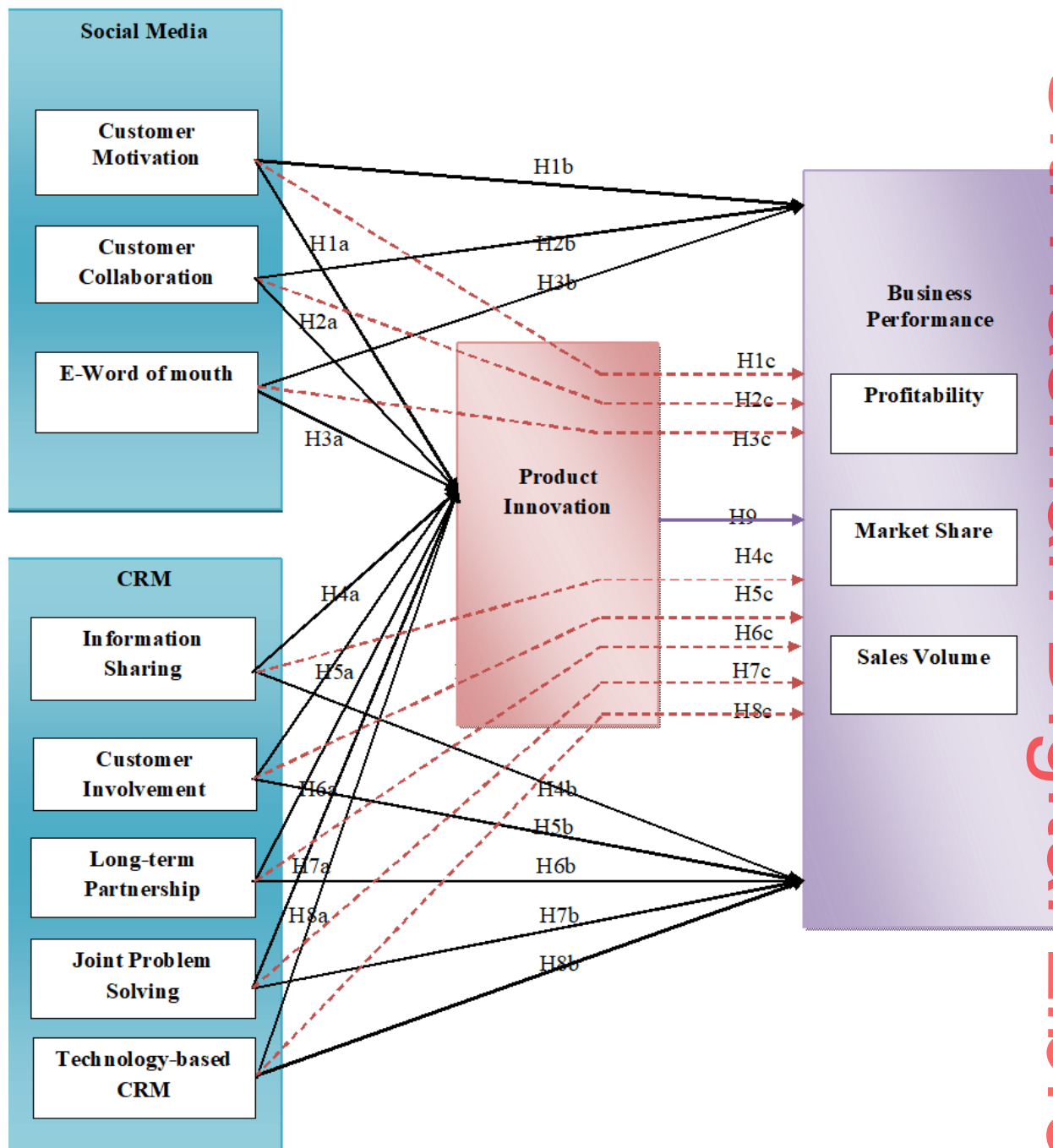


Figure 3.1 Theoretical Framework

H1a: There is a Significant Relationship between Customer Motivation and Product Innovation.

Regardless of the increasing spread of co-creation, the majority of the firms are challenged to discover customers who are prepared to collaborate and share their knowledge and ideas (Hoyer et al., 2010). Clients, their views, and requirements are complicated and powered by a number of motives. Because of the fact businesses often battle to fulfill consumer needs and goals adequately, it is necessary to explore their preliminary motivation for participating in digital communities. For that reason, it is very important for businesses to comprehend why some customers are more willing desires or to take part in co-creation to creativity than others. Some co-creating clients are motivated by economic rewards, either straight in the kind of monetary bonus deals or talk about of the gains of the firms that involves in co-creation with them, or indirectly, via the intellectual real estate that they might be received or via the visibility that they may obtain involved with (and particularly successful) competitions of co-creation. But many most people aren't quickly motivated by money: rather they decide to free show idea (von Hippel and von Krogh 2011).

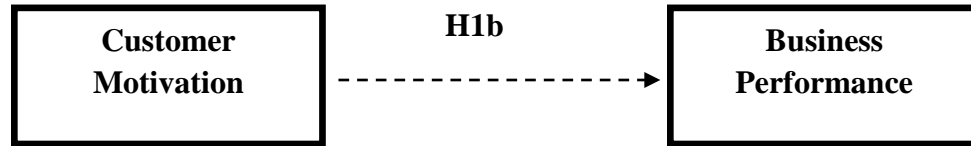
Clients are armed with new tools and really want to connect to companies and thereby co-create. This co-creation identifies the practice of item development or creativity that's collaboratively executed by programmers and customers jointly (Füller et al., 2010). Companies may use the customer's inputs for the creation of new products and allow customers take part in co-creation. There are many different motivators for clients to be energetic in co-creation (Chandy, Dorotic, Krafft, Singh, 2010). Many authors have defined the potential motivators for clients to co-create for new products. (Füller et al., 2010) Companies may use the customer's inputs for the creation of new products and allow customers take part in co-creation. Füller et al., (2010) discovered a

critical impact on the client motivation and product innovation. Therefore, this research hypothesized the following:



H1b: There is a Significant Relationship between Customer Motivation and Business Performance.

Consumers still have to be motivated to take part in co-creation. There are many different motivators for clients to co-create Füller (2010). Clients could be motivated through most of four different benefits. Companies can utilize this by marketing these perceived benefits within their co-creation actions, which in turn could result in more participation by customers within their co-creation actions Nambisan and Baron (2009). Nambisan and Baron (2009) Identifying the motivations for clients to take part in virtual consumer environments. An integral constraint for businesses can be that co-creation just works when skilled customers are prepared to cooperate and openly reveal their concepts and understanding with the business and in addition truthfully assess normal items and new concepts. (Füller, Faullant and Matzler, 2010; Füller, 2006) Motivating clients to participate straight with companies requires co-creation activity evolving into its purest type, more carefully correlating with how total value co-creation between a person and a company could be described. (Paulini et al. 2014), the client must expect an advantage just before collaborating with a company on a worth co-creation initiative and believe the curiosity can be achievable. By effectively implementing and handling co-creation and consumer motivation, a company could gain competitive advantages and business efficiency, namely improved efficiency and increased performance Hoyer et al., (2010). Therefore, this research hypothesized the following:



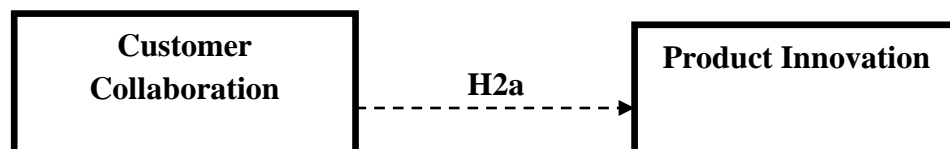
H1c. Product Innovation Mediates the Relationship between Customer Motivation and Business Performance.

H2a: There is a Significant Relationship between Customer Collaboration and Product Innovation

Several researchers have found that customer's collaboration is normally positively linked to product innovation (Kruitbosch, 2011; Gudda et al., 2013). The collaboration of Customer could be used to perceptions customer's needs, particularly in a rapidly changing world (Enkel et al., 2005). Lou et al., (2013) they studied on social media tools and identified best practices that have potential applications to increase collaboration and innovation within Enterprise. Collaboration with customers could be utilized as a main source of information. Von Hippel, (2009) explicitly is considered to the central role of clients as an information source. In this way, he showed that customers be an able major source of information. Later on, other researchers discover further evidence which collaboration of customer can be an essential tool for obtaining information about client preferences also which clients could suggest of innovative ideas (Enkel et al., 2005). Once users gain some familiarity with the new product they often willing added ability in future versions of the product. Other research in relationship marketing provided more theoretical and empirical evidence which collaboration of customer might increase the innovation performance success rate (Gudda, P. and Bwisa, H.M., 2013).

Customers Collaboration, companies may have access to information development, capabilities and resources that would otherwise be unavailable (Enkel et al., 2005). According to Carsrud and Brännback (2009), clients could first, provide main inputs which improve the innovation quality. Therefore, customer proximity will lead to an advantage regarding innovative product (Tsai, 2009) based on customer needs and wants. Collaboration with customers not only provides benefits in identifying market opportunities for technology development but also reduces the likelihood of poor design. In addition, understanding the needs of influential customers may help firms gain new ideas about solutions and identify market trends early on, thereby increasing the chances of fresh item advancement and achievement.

Thus, customer collaboration may lead to product innovation advantages. Customer collaboration can be utilized as a main source of information. As such, many firms adopt the suggestions got from customer collaboration using social media channels and structure their products or services for better corresponding to the desires and needs of customers. One central area of collaboration is communication, and via open communication, collaborating customers can attain the intended goals, the open setting for communication as well as the flow of information can foster organizational innovation. The potential advantages which collaboration with customers during product innovation can provide access to new resources and capabilities that the manufacturer lacks in-house. In addition, understanding the requirements of influential customer's can help companies obtain new idea about solutions and recognize market trends in early on, thereby enhancing the chance of new product advancement and achievement. Collaboration with clients includes a positive effect on product innovation (Kruitbosch, 2010). Hence, this research hypothesized as follows:



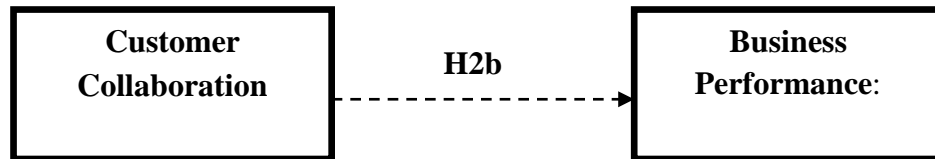
H2b: There is a Significant Relationship between Collaboration with Customers and Business Performance.

The successful collaborative customer is claimed to yield sizeable benefits, via; inventory decrease, better quality, improved delivery, decreased costs, compressed lead instances, faster product-to-market routine times, higher versatility, improved responsiveness to advertise needs and customer support, and market reveal boosts (McLaren et al., 2002). Later many other researchers identified additional proof that customer collaboration could be a crucial tool for gaining information regarding the preferences of customers and those customers can propose ideas for innovation (Enkel et al., 2005). Collaboration in the organization and outside is a crucial as well as an inseparable way of functioning of firms (Gudda et al., 2013).

Customer collaboration through social media can be utilized as a main source of information. Collaborating with customers provides the benefits of identifying the opportunities for technological advancements in the market and it also lowers the chances of bad design in product development. Also, the influential customers and understanding them will be useful for the firm to develop better solutions (Cleven, 2011). In addition, more scholars claim that customer collaboration contributes to the reduction of the product development cycle time (Kruitbosch, 2010), which is important in a rapidly changing environment. Eventually, customer collaboration could be utilized as a method to reduce market risks (Zhang et al., 2015). Through the collaboration with customers, firms try to reduce the costs and share the technical and financial risks (Zhang et al., 2015).

Consumer collaboration is significant opportunities for the creation of competitive advantage and financial performance (Tasi, 2010). High degrees of

collaboration with clients are to result in significant efficiency improvements, producing a company top notch and business performance. Burnes and New (1997) tension that only companies that effectively convert declared functioning partnerships with their clients into mutually helpful collaboration will get performance benefits. Hence, this research hypothesized as follows:



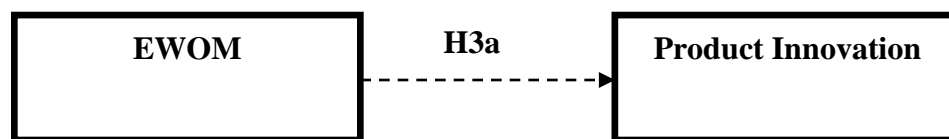
H2c. Product Innovation Mediates the Relationship between Customer Collaboration and Business Performance.

H3a: There is a significant Relationship between EWOM and Product Innovation.

Previous research on eWOM and product innovation studies (Liu et al. 2010, Kawakami et al., 2013, Keawsujarit et al., 2013, Plotkin and Munzel., 2014, Amini et al., 2015) examined eWOM on new product, These scholars highlighted that the utilization of eWOM as a popular open source to analyze customer needs and customers experiences to assist the development of new products. Luanand Neslin, (2009) show that information from eWOM impacts new product in three major areas: communication of marketing, consumers' perception of product quality and unobserved product specific effects. eWOM is the vital source of product quality information and does have a greater effect than other forms of publicity. eWOM is also useful for predicting new product success.

Liu and Chen, (2010) demonstrate that frequency the most useful predictor of new product success. EWOM may also increase positive results in terms of success and accuracy of new products (Pitta, 2005) However; it is necessary to explore the value of data from WOM conversations to maximize its merit in the product development. Nowadays, eWOM is definitely an essential communication channel and encourages people to share their knowledge and opinions. Info gathered from clients' encounters with services or products is more dependable than other channels of info. (Trusov, Buckin, and Pauwels 2009). Customers share their experiences and views on the specific segment of products and services on various web platforms. Companies can use these reviews and feedbacks for their new product development as well. Further to this, the improved access to the web and enhanced activities of social media has encouraged individuals to have some web presence throughout which can also be used by the companies in promoting their product and services (Li, 2011). eWOM also contains highly useful information regarding customers. Furthermore, it is important in other areas such as new product (Chen, 2011).

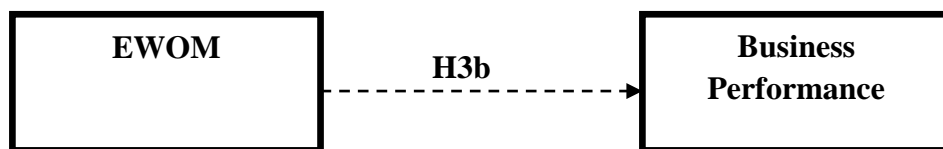
Liu et al. (2010) examined eWOM for a new product; they discovered that the amount of eWOM messages can be utilized to predict the achievement of a product at all levels. They also discovered that the amount of sentences in eWOM can be significant. Numerous researchers above have verified that consumer information is extremely meaningful to new product success. Therefore, it's important to find useful information from eWOM text messages to promote the new product successfully (Gallaughar, 2010). Hence, this research hypothesized as follows:



H3b: There is a Significant Relationship between EWOM and Business Performance.

Although studies are yet to investigate the direct relationship, the significant effect of eWOM on business performance can be grounded in extant literature (Chevalier and Mayzlin 2006, Zhu, 2010, Mejahdi and Saoudi., 2016). E-WOM encourages others to share their knowledge, thereby as an ever-expanding knowledge foundation which has information that allows innovating organizations to accomplish a sustainable competitive advantage (Hung and Li, 2007).

EWOM demonstrates online reviews impact on performance of firm (sales, cash flows, stock prices and abnormal returns) in both the short and the long-term (Berger, Sorensen, and Rasmussen 2010; Tirunillai and Tellis 2012) . The finding of their research shows that, when customer join a firm's online community or 'like' or 'share' certain comments or their share their opinion or experiences on social media, it creates a 'recognition value' for the firm and it can be effected on firm's performance.. Overall, the results of these Studies indicate that EWOMS have significant positive influences on sales performance. Sales are influenced by a number of online messages that recommend a product or service. eWOM has an impact on companies' sales, profits and overall success (Zhu, 2010). Hence, this research hypothesized as follows:



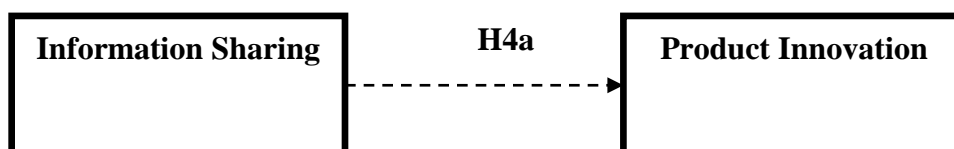
H3c.Product Innovation Mediates the Relationship between EWOM and Business Performance.

H4a: There is a Significant Relationship between Information Sharing and Product Innovation.

Numerous researchers confirmed the impact sharing of information on the innovative product (McEvily and Marcus, 2005, Datta and Christopher, 2011; Wu et al., 2011, Al-Hawary and Al-Hawary., 2016). Verhoef (2003) and Lagrosen (2005) showed that manufacturers could more new products to market using information from customers about the market, the demands of the market and competition in the market launch. (Wu et al., 2011) as well claim which using information supplied by customers facilitate the development of new products, more varied and changes in the operations of existing products to meet the needs of special target markets. (McEvily and Marcus, 2005) Generally, has a positive impact sharing of information on product innovations. Information sharing therefore plays a component in the level that both companions to successfully exchange important information about product ideas, market, competition, among other issues. Proper information sharing between customers and manufacturers will support to explore better their unique capability and value creation opportunities (Fang et al., 2007). Research also demonstrate that information of sharing influencing the worth and efficiency of the brand new products. Therefore, the exchange of information contributes to gather essential data and ideas about the merchandise, marketplace, and competition.

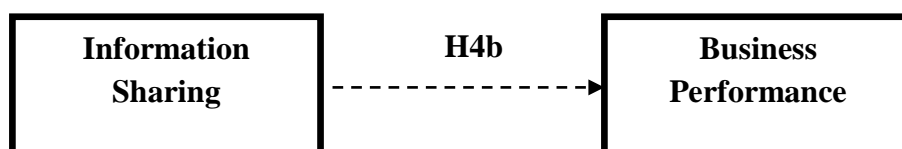
The exchange of information between the customer and organization assists to explore the very best opportunities and the initial capacity to get the values of the products (Fang et al., 2007). For that reason, the exchange of information between the company and the client must work to raise the value of the brand new product. Thus, sharing information between manufacturers and customers should increase the value of new products. Information sharing is argued to building a relationship with the customer, and valuable knowledge can be collected. However, no clear finding shows

the effect information sharing has on product innovation (Datta and Christopher, 2011; Wu et al., 2011). Hence, this research hypothesized as follows:



H4b: There is a Significant Relationship between Information Sharing and Business Performance.

Information sharing assists organizations increase revenue by decreasing the expense of inventories and improving capital and cash flow usage, therefore enhancing business functionality (Rai et al., 2006). Generally, effective information sharing increase mutual understanding, that decreases miscommunication and stops unnecessary errors; thereby decreasing transaction costs (Wu et al., 2006). Lin et al. (2009) argue that information sharing is definitely an exchange of precious information between the company and its clients. Also when the client and company engage in-depth information sharing, the firm's profitability will be improved. Mostly the information contains data regarding consumer demands, preferences, and sales promotion. Williamson (2012) shows that when information is certainly impacted and (not really shared between the parties, market failing is much more likely to occur. Mentzer et al. (2000) and Wu et al. (2011) argue that firm's with the high amount of information sharing can gain a competitive advantage in the market. Datta and Christopher (2011) conclude within their study an information sharing structure includes a critical effect on all company performance. Hence, this research hypothesized as follows:



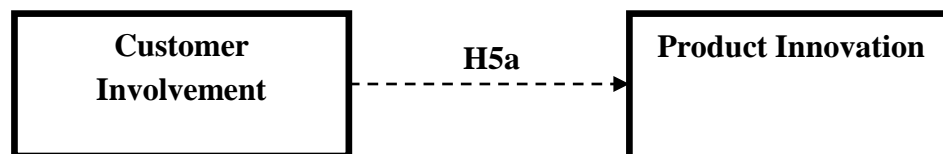
H4c.Product Innovation Mediates the Relationship between Information Sharing and Business Performance.

H5a: There is a Significant Relationship between Customer Involvement and Product Innovation.

Multiple studies have showed the value of the involvement of customers in new product and (Knudsen, 2007., Desouza et al., 2008; Kristensson et al., 2008; Carbonell, Rodriguez-Escudero and Pujari, 2009; Enkel et al., 2009; Piller, Ihl and Vossen, 2010, Bhalla, 2010) they found that involvement of customer during the new product has been recognized as one of the most critical aspects for manufacturers for produce successful new products.

Firms involve clients in the advancement stage to get important details about the clients' encounters when using the product/service (Cheng et al., 2012). Concerning the client in the development product might decrease dangers of failing and an product/service that corresponds to the marketplace want (Cheng et al., 2012; von Hippel, 1988).Client participation in the creativity provides the company beneficial info that assists reducing uncertainties regarding consumer demand (Chien and Chen, 2010). Knudsen (2007) argues that external interactions are important for product advancement performance and client involvement is usually the most regularly utilized relationship. Kristensson et al. (2008) claim that a firm can function better using involving of customer in two different methods, active and reactive role of the customers. Kristensson et al. (2008) do not present which way is usually the most effective, but they conclude that it has a positive effect on product of a firm ideas which is in line with the findings of this investigation.

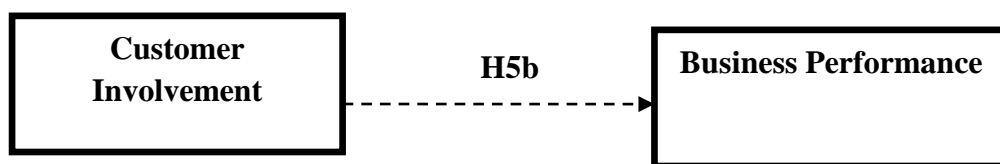
Knudsen, (2007) argues that associated with that customer cannot conceptualize ideas that are beyond their own experience. Despite the fact that the hypothesis of the involvement of consumer having a positive impact on innovative of products was supported, it may be observed in the cluster analysis that not absolutely all companies put high values on consumer involvement. Involvement of Customer during the new product has been recognized as one of the most critical aspects for manufacturers for produce successful new products (Faems, 2005). Specifically, early customer cooperation in activities of the new product or manufacturing technical meetings facilitates innovation to develop further differentiated products to specific target markets (Lagrosen, 2005). Therefore, the customer involvement of customer's appositve influence on the innovative product. The Involvement of Customer is linked to customer collaboration in activities of new product, technical meetings, and market evaluation conferences. Wang et al. (2013) Stated that customer can be used interchangeably and that the involvement of customer is the development of product shows the interaction between customers as well as the process of design. Customer involvement also improved considerably due to getting and retaining sustainable competitive advantage in the development of new product (Feng et al., 2010). A n organization usually emerging to concentrate on customer participation, pay attention to catch customer's responses, and ideas to be able to carry out better with impressive suggestions and also developing services and products in a competitive marketplace environment (Knudsen, 2007). Most of the customers share their experiences and needs rather than being innovative as the organization demands in innovation (Cheng et al., 2012) Kristensson et al. (2008) study, they stated that involvement of customers has positive impact on product development and generate innovative ideas. Hence, this research hypothesized as follow:



H5b: There is a Significant Relationship between Customer's Involvement and Business Performance.

Based on the previous literature, (Carbonell et al.'s 2009, Svendsen et al., 2011), In contrast, found that customer involvement can increase the firm's sales and performance. However, customer involvement allows the customers to build up improved functional requirements, modify item design to lessen creation costs or create a design that fulfills the special requirements and complications of customers to a larger extent. Organizations listen to customers, their preferences, needs, and desire in order to identify their ideas and wants to perform better in terms of product development and their sustainability in the competitive market and performance (Svendsen et al., 2011).

Consumer involvement should allow the clients to build up improved useful requirements, modify item design to lessen creation costs (Yli-Renko et al., 2001), or create a design that satisfies the special requirements and problems of clients to a larger extent. Organizations listen to customers, their preferences need and desires in order to identify their ideas and wants to perform better in terms of product development and their sustainability in the competitive market and performance (Svendsen et al., 2011). The customer may also be a collaborator over an interval, (proactive), which might lead to new business opportunities and ideas (Kristensson et al., 2008). In Kristensson et al. (2008) research, they argue that customer involvement has positive effects on the company performance and might generate successful product ideas. Furthermore, customer involvement can allow more efficient means of supplying products, by methods such as integration of activities into customers' procedures or by enhancing for communication and feedback (Yli-Renko et al., 2001). Hence, this research hypothesized as follows:



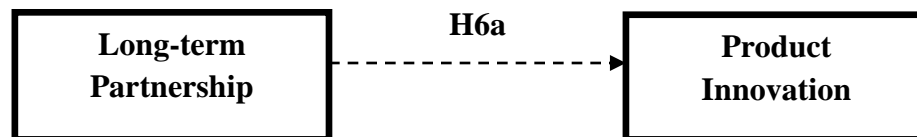
H5c.Product innovation mediates the Relationship between Customer Involvement and Business Performance.

H6a: There is a Significant Relationship between Long-Term Partnership and Product Innovation.

Based on the theoretical framework could it be essential for companies to develop long- long term relationship with its customers to gain competitive advantage (Ganesan et al., 2010; Lumpkin et al., 2010). The empirical analysis signifies that long term relationship provides a positive impact on innovative product, which signifies that the respondents discover dedication, conversation and shared goals with companions as essential aspect for the company (Lumpkin et al., 2010). This signifies that the conception of long lasting relationship will help the firm to end up being effective with innovation and obtain advantages in the marketplace. According to Lumpkin et al. (2010) a business partnership can result in significantly improved performance for the firm, which might result in uniqueness, giving the firm competitive advantage. They continue to argue that innovativeness is more likely to develop in a firm where long-term values are important positively.

Several researchers have pointed out the importance of sharing significant information, and interact with customers and suppliers to create and exchange value. The more information suppliers and customers share, the more dependent they are. Mostly the exchange of important details takes place where high-tech innovative item advancement solutions require ending up being resolved (Aarikka-Stenroos and Jaakkola, 2012). The empirical data shows that it is the ongoing communication with partners that leads to the beneficial factors in the partnership . This is strengthened by the theoretical framework since it states that without any ongoing communication the long-term partnership and the advantages will be reduced (Theron et al., 2008).

Humphries and Wilding, (2004) argue that there will be negative effects for firms when working with long-term partnership. If seeks of business to maximize performance of long-term with regards to client satisfaction, it must build, keeping, and boost long-term and mutual benefits relationship (Sin et al., 2005). Therefore organization can become further probability by concentrating on profitable customers and reduce the subsidization of unprofitable customers in the long-run. Only one article Lumpkin et al., (2010) could strengthen the positive association of long-term partnership with innovation. Propose long-term participation has a positive influence on innovative product. Hence, this research hypothesized as follows:



H6b: There is a Significant Relationship between Long-Term Partnership and Business Performance.

Regarding to Ganesan et al., (2010) and Lumpkin et al., (2010) business partnership can lead to improved performance for the company, which might lead to uniqueness, offering the strong competitive advantage. If a business aims to increase its long-term functionality with regards to client satisfaction, it must build, maintain, and improve long-term and mutually helpful relationships (Lin et al., 2010). Thereby firm may become more rewarding by concentrating on rewarding customers and reduce the subsidization of unprofitable customers in the long-run (Lin and Germain, 2004).

Theron et al. (2008) agree on the importance of shared goals and values, but define long-term partnership as the commitment to provide resources and develop the long-term relationship continually. Also, previous research shows that long-term

partnerships lead to increased mutual profitability (Anderson and Weitz 1992) and enhance the performance outcomes associations (Noorderwier, John, and Nevin 1990). Similarly, Kalwani and Narayandas (1995) found that maintaining close associations with clients in the long-run lead to more profitable through better understanding and servicing of customer needs Long term partnership among a firm and its customer's aid many gains for both sides. Long term partnership, in fact, enjoys the enhanced competitiveness, lowered costs of transaction, lowered uncertainty, enhanced financial performance and enhanced marketing productivity (Li and Sang., 2011). Hence, this research hypothesized as follows:



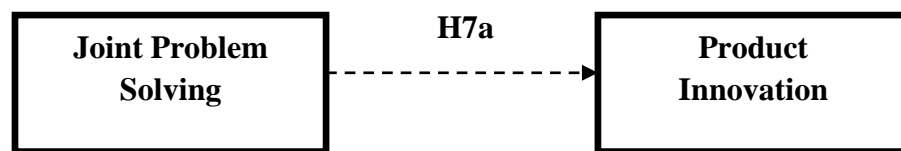
H6c. Product Innovation mediates the Relationship between Long-Term Partnership and Business Performances.

H7a: There is a significant Relationship between Joint Problem Solving and Product Innovation.

Joint problem solving has mentioned to cooperation between manufacturers and clients in solving problems together and sharing responsibilities when they face with difficult or unexpected situations (Lin et al., 2010). It was mainly regarding the conflicts between the organization and customers. Innovation is influenced by joint problem solving where it generally introduces the ongoing enhancements of the current products or services (Huang and Chang, 2008). Joint problem solving promotes the exchange of complicated and tough to codify knowledge for the enhancement of

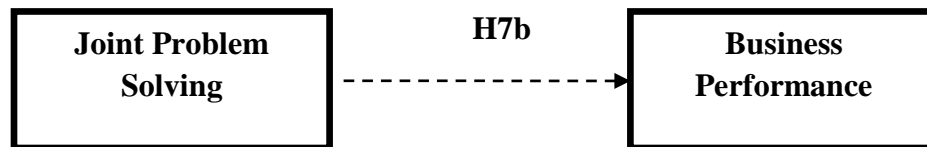
innovation (Mcevily and Marcus, 2005). Joint problem solving exerts positive impact more than the success of product and market development. Particularly, this involves from established designs, procedures, and markets. Foundation on Aarikka et al., (2012) manufacturers built with sound joint problem-solving mechanisms are in a much better situation to supply after sale services, resolve customer claims, and provide warranty and maintenance services. It allows firms to perception and responds to deeper and additional valuable client requires and reduce the intrinsic risks of innovation (Maklan et al., 2008).

Lin et al.,(2010) Joint problem solving is considered as an important factor influencing the new product success and development of market. Ritter and Walter (2003) believed that it could be easier for manufacturers to quality improvement of product and technical process ability when clients voluntarily assist in solving product design or technical process problems. Joint problem-solving is known as to be the main and critical element for product innovation. When the customer helps with solving the problems related to product designation or technical, exchange to share information, organization can improve the product quality and the capability of technical processes more easily. So, joint problem-solving factor influences innovation which causes more improvement in products. (Huang and Chang, 2008 and Ghafari et al., 2012). Hence, this research hypothesized as follow:



H7b: There is a Significant Relationship between Joint Problem Solving and Business Performance.

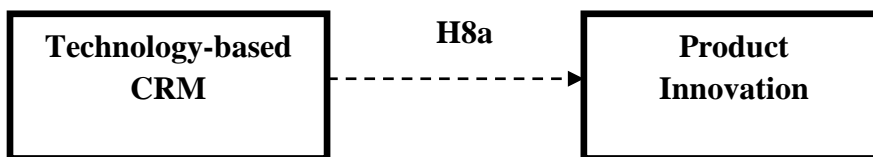
Joint problem solving refers to the interaction between organization and its customers in the solving of issues together and in sharing the responsibilities when there is an issue or difficult or unpredictable situations arise (McEvily and Marcus, 2005). Collaboration between the firm and its customers for problem-solving as well as sharing the responsibility together when an issue arises or tough or unpredicted situations arise (Islam, 2010). Lin et al., (2010) proposed that a firm with useful association with their customer has a competitive advantage, as due to the synergy among them in association with joint problem-solving activities. In addition, predicated on previous findings of the positive relationship among joint problem solving and performance of firm (Nwokah 2015), Hence, this research hypothesized as follows:



Hypothesis 8a: There is a Significant Relationship between Technology based CRM and Product Innovation.

Different researchers acknowledged the role of information systems and technology in supporting innovation (Tarafdar and Gordon, 2007, Lin et al., 2010). Lin et al., (2010) claimed that manufacturers must apply technology of information (IT), like online data analysis, customer information systems, mining of data, and service centers, for understanding and communicate with their clients. Manufacturers can offer fast responding to customers request for new product innovation. So, the technology-based

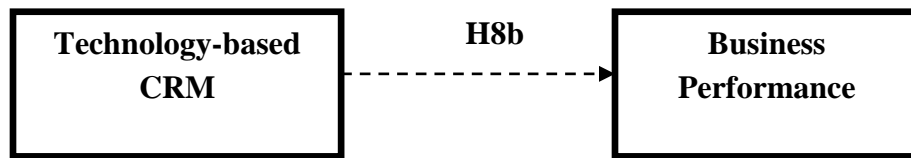
CRM can promote innovative of product. It is well recognized that information system and technology support innovation of product. CRM technologies can help companies to understand the customers more coherently and comprehensively, and to best organize internal data to decrease costs of services, assisting dealers to close deals more efficiently and improve targeted marketing programs. On the other hand, as clients use internet related technologies to manage their relationships with companies, it is more possible for them to partnership in the innovation of product. Hence, this research hypothesized as follow:



Hypothesis 8b: There is a Significant Relationship between Technology based CRM and Business Performance.

Many research, done about the effect of information technology on company performance survey very similar results of the positive role of information technology in CRM strategy (Kasim and Minai, 2009, Mohammed and Rashid, 2012; Kim et al., 2012, Borsa., 2014). Also, these studies revealed that many customer-centric strategies cannot achieve their goals, without the help of information technology (Abdullateef et al., 2010). Therefore, CRM based technology allows companies to program and put into action effective marketing activities for keeping clients long-last and producing them even more profitable, due to the consumer data source and various other information-storing systems (Roberts, Liu, and Danger, 2005). Additionally, Chang, Recreation area, and Chaivy (2010) verify that CRM technology increases marketing capability by providing valuable information regarding clients, which, in turn, will help

managers to obtain particular marketing goals very much even more successfully. Kim et al., (2012) discovered that CRM technology can foster gathering, analyzing, and interpreting several types of consumer data in order to improve the relationship with the consumer. Through changing consumer information into usable data, CRM can raise the overall performance of a firm. Companies that merge CRM with information technology application are likely to have got elevated performance and consumer satisfaction that effect on its overall profitability (Oghojafor et al., 2012). Reimann et al. (2010) believe that technology-based CRM indirectly enhances business performance. Hence, this research hypothesized as follows:



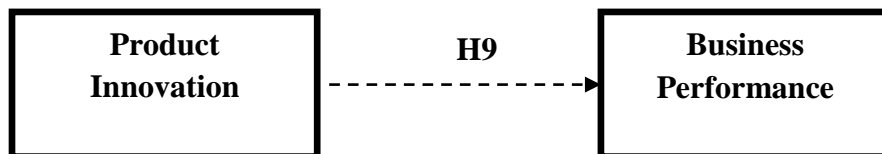
H8c. Product Innovation Mediates the Relationship between Technology based CRM and Business Performance.

H9: There is a Significant Relationship between Product Innovation and Business Performance.

At the very same time, the association between innovation of product and performance of the business has been studied by many scholars (Espallardo and Ballester. 2009, Polder et al. 2010, Lau et al., 2010, Cameron and Lopez, 2010, Najib and Kiminami 2011, Gunday et al. 2011, Tung 2012, Löfsten, 2014). According to Alam et al. (2013) probed the impact of innovative activities on the corporate performance by the measurement of sales revenue, share of market as well a rate of profit. Also Najib et

al., (2011) it was indicated that innovation and performance of the organization are positively related. Innovative Product is definitely among the key resources of competitive advantage to the company (Camison and Lopez, 2010). With innovation, quality of products can be increased, which it plays a part in firm performance and eventually to a firm's competitive advantage. Alteration of existing products to meet Innovation is an essential determinant of business performance in a changing competitive environment.

Artz et al. (2010), investigated the effect innovation of product on company performance in different industries of the U.T. and Canada. They found that product innovation has an important effect on strong company performance. Therrien et al. (2011) explored whether innovation has an effect company performance in selected services industries. The results show that, in order to obtain more sales from innovations, firms need to enter the market early or to introduce new products with high levels of novelty. Gunday et al. (2011) researched the results product innovation on different elements of company performance, including accomplishments in production, marketing, and financing, through an empirical research supported Turkish manufacturing companies in various sectors. A research by Morone and Testa, (2008) indicated that innovation is positively related to companies' performance in terms of relative profitability, market share, and growth. Hence, this research hypothesized as follow:



3.6 Operational Definition of Variables

An operational definition can be described as the process of defining a concept to make it measurable (Cooper and Schindler, 2003; Sekaran, 2003). Operationalization of constructs is about defining the concepts to make them measurable, and it is possible by looking through its behavioral dimensions, properties, or facets denoted by concept, and translate them to the measurable elements (Sekaran, 2003). Based on Hair, Black, Babin, and Anderson (2010) at first step the researchers need to provide clear sentence for each concept and define potential scale accordingly, secondly, provided items should be quite sufficient for capturing the construct domain, at the third step researcher need to judge the items for their content, which needs expert opinion to check how well items could match the constructs, Four, the items should be analyzed through an exploratory factor analysis and fifth to ensure the sufficient number of items exist for every factor. As a principle, the structure must be reflected by at least of 3 items, ultimately four (Hair et al., 2010).

3.6.1 Operationalization of Social Media Constructs

Social media is represented by three dimensions, namely: Customer motivation, Customer collaboration, and EWOM, labeled from SM1 to SM3.

Customer Motivation (SM1)

Explaining of Customer motivation and operationalized Table (3.1).in

Table 3.1: Operationalization of Customer Motivation

Sources	Operationalized items
(Dvorak 2013);Hoyer et al., (2010); Nambisan and Baron (2009); (Ophof 2013); (Deci and Ryan, 2002) (Raasch and von Hippel, 2013) , (Hienerth, von Hippel, and Jensen, 2014)	<ul style="list-style-type: none">• Learning benefits leads to customer motivation, which will enhance customer's knowledge about the product in your organization.• Learning benefits will motivate customers and leads them to share their ideas and knowledge with your organization.• Social integration motivates customers for participating by receiving certain type of recognition in your organization.• Social benefits could strengthen a consumer's willingness to interact and exchange information with your company.• Social integration will raise customer's status/reputation as expert in their network which will affect productivity in your organization.• Personal integration improves customer's satisfaction in the form of helping your organization to design better products.• Social networks could make customer's willingness for interacting with your organization as well as other customers.

- Personal integration will make customers feel that their feedback is respected as contribution for innovation or improvement in your organization.
- In your organization, Hedonic benefits offer customers enjoyment from problem solving, idea generation through customer motivation.
- Appropriate rewards for participating in co-creation will motivate customers for participating in activities in your organization.
- In your organization, customers get things like bonuses or status enhancement being active in co-creation.

Customer Collaboration (SM2)

Table 3.2: Operationalization of Customer Collaboration

Sources	Operationalized Items
Renko, Carsrud, and Brännback (2009); Tang and Murphy (2012) (Lou et al., 2013); (Gudda et al., 2013), (Enkel et al., 2005);(Lou et al., 2013), (Zhang et al.,2015)	<ul style="list-style-type: none">• In your organization, customers are the first priority to provide major inputs that improve the quality of innovation.• Having close partnership with customers during product development may help to provide access to resources that organization lack in.• In your organization, customer collaboration may lead to an advantage in terms of product innovation; based on customer needs and wants through social media.• In your organization adopting the suggestions from customer collaboration through social media and structure their products to have better corresponding to the desires and needs of customers.• Your organization uses customer expertise in products, by using information collected from social media.• In your organization, customer collaboration could be an important tool to get information about customer preferences using data which is gathered from social media.• Social media tools have potential to increase customer collaboration and innovation in your organization.

Electronic Word of Mouth (SM3)

Table 3.3: Operationalization of EWOM

Sources	Operationalized Items
Goldsmith and (Gil-Or 2010); Hyuk Jun and Morrison (2008); Van der Lans et al. (2010) Liu et al. (2010); (Petrescu and Korgaonkar 2011); (Gallaughar, 2010), San José-Cabezudo and Camarero-Izquierdo 2012) ,(Kietzmann, 2013)	<ul style="list-style-type: none">• Your organization has willing to follow consumer opinions online via social media.• Your organization has willing to utilize consumer feedback in developing products using social media.• Your organization uses discussion in social media to forecast customer trends.• E- Word of mouth makes customers share their views and experiences in the social media which can be used for product innovation in your organization.• The number of E-WOM messages can be used to predict the Success of a product or innovative products in your organization.• Customer opinions which are gathered through social media play a significant role in innovation in your organization.• Your company discovers useful information from customer's E-WOM messages to promote new product effectively.

3.6.2. Operationalization of CRM Constructs

CRM is represented by five dimensions, namely: sharing of Information, involvement of customer, Long-term participation, joint problem -solving and technology-based CRM , labeled from CR1 to CR5.

Information Sharing (CR1)

Table 3.4: Operationalization of Information Sharing

Sources	Operationalized Items
Lin et al., (2010); Fang et al, 2007); (McEvily and Marcus, 2005; Mentzer et al., 2000) (Ernst et al. 2011) (Li et al. 2014);(Bonner, 2010);(Lau et al., 2010),(Anekal, 2014)	<ul style="list-style-type: none">• Information sharing between customers and your organization has a great deal of impact in maintaining a long-term relationship between two parties.• Sharing information between customers and your organization can enhance the new product's value.• In your organization greater sharing of information with customer may improve product quality and innovation.• Your organization shares market information with customers (Promotion information and competitive product information .• Your organization shares product demand information with customers.• In your organization, high quality information from customer leads to build products which receive higher level of satisfaction. (Information quality)

	<ul style="list-style-type: none"> • In your organization, information sharing between manufacturers and customers can improve the trust between two parties. • In your organization higher value of new product could be result of using higher quality customer’s information. • In your organization, sharing information allows the customers to be always informed and through the points of contact in which they are most likely interested. • In your organization, customers are the main source of innovative ideas for making new products.
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Customer Involvement (CR2)

Table 3.5: Operationalization of Customer Involvement

Sources	Operationalized Items
(Cheng et al., 2012) , (Borgqvist and Lindberg 2011); Alam (2006); Andreassen and Streukens’ (2009),(Gent et al. 2014),Iruka, (2014)	<ul style="list-style-type: none"> • The key clients are involved in new product activities in your organization. • The key clients are involved in your organization with modifying new products. • The key clients are involved in periodically reviewing operations with your organization. • Your organization periodically reviews product development system to ensure that they are in line with customer’s needs.

	<ul style="list-style-type: none"> • In your organization, customer involvement can enhance the development of differentiated products and fulfill their needs and desires. • In terms of innovation, your company doesn't risk much in customer's involvement. (because of the threat of losing the confidential data, ideas to the competitors) • In your organization, intensity interactions can be considered as an inspiration for the ideas generated on within the organizations which can be used to develop new products through CRM. • Customer feedbacks and comments on web platforms can be used by your organization in the process of interaction with customers.
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Long-term Partnership (CR3)

Table 3.6: Operationalization of Long-term Partnership

Sources	Operationalized Items
Theron et al. (2008); (Handfield and Bechtel, 2002). Werner et al. (2004);(Li and Sang, 2011),Sjöberg, (2013)	<ul style="list-style-type: none"> • The long-term partnership between your company and customers will help to have many benefits for both sides. • Your company maintains interactive, two-way communication with customers. • Your organization cares about the long-term partnership with customers. • Your organization is committed to

	<p>improving products in whatever customers suggest.</p> <ul style="list-style-type: none"> • Customers are committed when they have mutual trust with your company. • The clients trusted by your organization are willing to provide suggestions for their products. • In your organization, the trust is crucial in building longer-term bonding with customers. • With mutual trust and understanding, your company can maintain close partnerships with customers.
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Joint Problem Solving (CR4)

Table 3.7: Operationalization of Joint problem solving

Sources	Operationalized Items
(McEvily and Marcus, 2005);(Song et al. 2010); Lin et al.,(2010),Aarikka et al., (2012)	<ul style="list-style-type: none"> • The key clients work with your organization to solve problems in product design. • In your organization, it's necessary for the exchange partners to share information relevant to the products problems. • In your organization joint problem solving will increase, the collaboration and recognition of new information. • Joint problem solving allows your organizations to draw on the insights, experience, and ability that firm

	<p>customers have capability.</p> <ul style="list-style-type: none"> • Joint problem solving is easier for your organization to enhance product quality and technical ability. • Joint problem solving will improve the learning for your organization which happens in exchange relationships.
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Technology-based CRM (CR5)

Table 3.8: Operationalization of Technology-based CRM

Sources	Operationalized Items
(Sin et al., 2005); Lin, Chen, and Chiu (2010); Sakunthala et al., (2011); (Peppers and Rogers, 2004); Canter (2002); Chen and Popovich (2003),(Farzin et al.,2014),(Borsaly 2014)	<ul style="list-style-type: none"> • Your organization uses a call center or computer telephone integration to deal with demands of customer, complaints, and suggestions. • Your organization uses a service center to deal with customer suggestions. • Your organization has an integrated customer relationship management (CRM) performance evaluation system. • Your organization uses data warehousing and data mining to save customers' information for identifying that the potential customers are more valuable. • Your organization establishes perfect web-based customer interaction. • Your Organizations utilizes technology as a key tool for improving the flow of information in their business.

- Information flow will help your organization to have interactive communications with your customers.
- In your organization flow of information is regarded as a crucial element of CRM mechanism.
- The capture of information in your organization can be the ability in collecting and storing the relevant information about the customers.
- In your organization capture of information is a crucial dimension in CRM systems.
- Capture of information can aid in your organization having long terms association with the customers in the long run.
- Usage of information is an important component of CRM systems in your company.
- In your organization, information usage is the ability for using information pertaining to customers for developing customer profiles and target market.

3.6.3 Operationalization of Product Innovation Constructs

Product Innovation (PI)

Table 3.9: Operationalization of Product Innovation

Sources	Operationalized Items
Lin et al.,(2010); Damanpour et al. (2009); (Faems et al., 2005); OCDE (2005); Hoonsopon and Ruenron, (2012),(Johansson et al. 2013),(Wong, 2014)	<ul style="list-style-type: none">• Your organization launches new products to the market.• Your organization frequently tries out new ideas.• In your organization new products, expands new markets.• Your organization launches customized products according to market demands.• Your organization has developed new product lines.• Understanding customer needs during implementation the new products in company is important in order to have effective product innovation.• Collaboration with external sources has become successful experience with product innovation in your organization.• Your organization can reduce the time to develop a new product until it is launched to the market.• Your organization creating innovative products that are new to your company.• The market needs to play a crucial role in the implementation of innovations in your organization.

3.6.4. Operationalization of Business Performance Constructs

Business Performance (BP1)

Table 3.10: Operationalization of Business Performance

Sources	Operationalization Items
Dawes (1999),(Najib and Kiminami, 2011), (Yang, 2014), (Ul et al. 2013), (Rosli and Sidek 2013)	<ul style="list-style-type: none">• In your organization, profitability of this year increased compared to last three years.• Product innovation increases the general profitability of your organization.• Innovation increase sales by increasing product consumption and additional yield profit in your organization.• Market share can increase your firm performance by achieving more sales.• Product innovation increases the market share in your organization.• In your organization, market share of your product for this year increased compared to last three year.• Your organization is able to managing as well as a directing its volume of sales.• In your organization, innovation is one of the most consists drivers of sales volume.• In your organization, sales volume of this year increased compared to last three years.

3.7 Pre-test and Pilot Study

Essentially the most very important method of survey questionnaire development is pre-testing questionnaire or doing a pilot research (Balian, 1994). The research will be used both of pilot study and pretest.

3.7.1 Pre-test

According to Zikmund et al. (2010), the pre-test instrument includes subject matter experts who are researchers and practitioners on problems including wording and scale suitability. The feedback in this pretest is beneficial in assisting in the modification of words and particular questions if required. Therefore, this study, the initial eighty-nine items survey questionnaires were presented to five industry practitioners in manufacturing companies and three academics with research expertise.

The following changes are performed on the questionnaire according to the feedback and suggestions.

- 1) All of the respondents had been requested to comment vitally on the suitability, the appropriateness and the simplicity of understanding of each item.
- 2) Decrease the length and reduce the use of technical lingo in the covering letter.
- 3) The respondents had been requested to acknowledge any problems with wording, complications with double-barreled questions, leading questions and biases.
- 4) One of the main feedbacks was that most questions asked were too long.

It took another two weeks of careful work to complete their comments, and the result was the final research questionnaire ready for the ultimate survey.

3.7.2 Pilot Study

The pilot study ensures that the research instruments function well and the respondents answer the questions without facing any problems (Hair et al., 2010). A pilot study is particularly critical for self-administered questionnaires, as no interview would be carried out to clarify any confusion (Saunders et al., 2009). The pilot study is used to improve the survey questions and structure. The pilot study respondents are given a full set of questionnaire as well as a cover letter that explains the survey objectives, assures the respondents of confidentiality, and the respondents required to mention the duration of completion of the survey, as well as offer any changes or suggestions to improve the questionnaire design.

According to Cooper and Schindler (2003), the size of the pilot study may range from 25 to 100 respondents but not necessarily to be statistically selected. Past studies indicated that a pilot study of 20 to 50 cases was adequate to discover flaws that exist in the questionnaire. This involved the distribution of the preliminary questionnaires to 50 respondents from Malaysian manufacturing companies, who were selected from the study population but excluded from the main survey. The feedbacks received from the respondents were encouraging. A reliability test utilizing Cronbach's Alpha was used to test the construct validity during this Pilot Study stage. Table 3.11 depicts the Cronbach's alpha related to each construct in the pilot study. The questionnaire for the pilot study was consists of six sections. (1) Section A: general information, (2) Section B: Social media, (3) Section C: Customer relationship management (CRM), (4) Section D: product innovation, (5) section E: business performance and (6) Section F: Comments. A sample of the questionnaire utilized in pilot study is demonstrated in Appendix A.

Table 3.11. Cronbach's Alpha for Each Construct in the Pilot Study

Construct	Item	Cronbach's Alpha
customer motivation	11	0.78
Customer collaboration	7	0.71
E-WOM	7	0.74
Information sharing	10	0.81
Customer Involvement	8	0.76
Long-term partnership	8	0.76
Joint problem- solving	6	0.71
Technology-based CRM	13	0.84
Product innovation	10	0.80
Business performance	9	0.79

The reliability of the scale measured was by Cronbach's alpha (Hair et al., 2010). Based on Hair et al. (2010), the acceptable value for Cronbach's alpha is 0.7 and Cronbach's alpha with a value below 0.7 is taken as poor internal consistency (Hair et al., 2010). The values for Cronbach's alpha coefficient are presented in detail in Table 3.11.

Table 3.11 shows that the alpha values for the scales measuring the three dimensions of social media, five dimensions of CRM, product innovation and business performance all either equaled or exceeded 0.70 indicating that from the internal consistency perspective, the scales performed satisfactorily. The alpha values of the three dimensions of social media ranged from 0.71 to 0.78. For the five dimensions of CRM ranged from 0.71 to 0.84, product innovation is 0.80 and Business performance is

0.79. The survey questionnaire was, therefore, deemed appropriate for use in the research.

3.8 Questionnaire Structure

The primary objective of the questionnaire is to collect information regarding the constructs in the social media and CRM on product and business performance. The questionnaire consists of five sections. Section A is general information about the organization, Section B measures the level of Social media, Section C measures the level of Customer relationship management (CRM), Section D measures the product innovation and section E measures the business performance. Each section is separated from the previous section utilizing a heading. The first section (Section A) comprises 11 questions concerning demographics profile. The second section (Section B) inquires about respondent's opinion regarding the Social media in the organization. This section consists of 25 items, grouped into three categories (Customer Motivation, Customer collaboration, and E-WOM). The third section (Section C) covers 45 questions relating to Customer relationship management. Construct of Information sharing, Customer Involvement, Long-term partnership, Joint problem- solving and Technology-based CRM). The fourth section (Section D) covers ten questions relating to product innovation, and the fifth section (Section E) covers nine questions relating to Business performance. A sample of the finalized questionnaire is presented in Appendix B.

3.9 The Survey Method

To effectively deal with the questions of research and the issues there around, in this research is model testing and entire the hypotheses by carrying out a survey. The reasons for using a survey study in this research are first this lets for same time survey of

many variables systematically and directly (Amy, 2002). Second, this provides basics for creation generalize ability and so, letting reliability, as the information is gathered from a large population (Thompson, 2008). Third, this is an effective tool for assessing the individual's experiences and perceptions on a special subject and fourth, this is cheap and convenient for using (Ganster, Hennessey and Luthans, 1983). Base on Malhotra (1999), respondents can be proposed by questions, orally, in writing or through computer, questions partnering with behavior, demographics of attitude and characteristic of lifestyle. The check is constructed method; of questions designed for evaluating the reliability of the survey measured is used. In this research, email survey, through self-applied questionnaires will be done to collect data for testing the hypothesis associates between the structures and conceptual model.

Social media measurement and CRM, Product innovation and Business performance are elements which must be practical to increase an organization hierarchy or units of business and therefore, in this research is used by organization as the unit of analysis. The analysis unit mentions an examination level of study will be centralization on (Zikmund et al., 2010) and usual used analysis units consist of a group, pairs, and individual (Sekaran and Bougie, 2010). The respondents of target identified in the list of emailing to managers from different functional in units working in manufacturing companies. With virtue of their position in the organization, which personal have assumed to understanding of CRM and social media and its impact on product innovation and business performance.

3.10 Development of Instrument

Questionnaires are works the best with standardizing questions which will be construed the same approach with all of the respondents (Robson, 2002). After doing substantial test to extract trustworthy reply from the sample, the structured questions

would list in the questionnaire carefully (Hussey and Hussey, 1997).The subjective measures for constructs; namely Social media and CRM, product innovation and business performance, is measured by five-point scale of interval questionnaire, for this research.

3.10.1 Designing the Questionnaire

The Explanatory studies need to data for testing. As a result, there's require to possess an accurate literature review, widely an explained ideas and the conceptualized view before questionnaire designing. The procedure engaged in the design of questionnaire includes a. choice of suitable scales of measurement b. choice of question-wording and content c. the format of response and d. the questions sequence. In this study, the English language has used for questionnaires, which used in most of the business in Malaysian.

3.10.1.1 Data Measurement Scale

In this study purpose in order to measure the respondent's feeling towards business performance, multiple item scales will be deemed suitable. The reason is; the deployment of multi-item scale assurance which general score is a reliable reflection of the real underlying scores (Hayes, 1998). The Measurement scales which will use in this study are including nominal, ordinal and interval. Likert scale is applicable to determining the respondent Idea, whether they strongly disagree or agree with the statement(Sekaran, 2003). At this research, five points Likert scale is applied for interval scale due to yielding higher reliability coefficients through fewer items in comparison with other methods (Hayes, 1998), it was tested in both literature of marketing and

science of social (Garland, 1991), it increases the variance of responses that lead to stronger measure(Quee, 2000).

3.10.1.2 Content and Wording of Questionnaire

Questions are designed with precision and comprehension. Questions found to be ambiguous, unclear, generalization, estimation, double-barreled such as two questions are considered one), leading, and presumptions will be removed.

3.10.1.3 Response Format

Labeled Likert scales will be probably adopted because it yields upper-reliability coefficients with lower items (Hayes, 1998) and gives a higher probability of responses that indeed reflect respondent's view under research (Burns and Bush, 2002). Moreover, it as well helps to enhance and expand from responses variance that in turn provides stronger measures of association (Aaker et al., 2000). The measures uses Likert-Style Rating Scale with 1 = strongly disagree, 2 =disagree, 3 = neutral, 4 = agree and 5 = strongly agree. The respondents will need to indicate their agreement or disagreement degree with the attitude statements developed for this research to measure the four constructs. Base on Remmers and Ewart(1941), in the study of Likert (1932) when respondent is able to answer his or her agreement to disagreement with every item using a five-point scale, the reliability of the total scale is maximized. Since it is proven that enhance from five to seven- to nine-point scale does not statistically improve the reliability of the ratings, the five-point Likert scale is used in this research.

3.10.1.4 Sequence of Questions

For testing model and its own related hypothesis, this research used a survey questionnaire to get the respondents' idea about the result of Interpersonal media and CRM on product innovation and business performance. The questionnaire is an effective device, when expectation, measurement of variables, and study requirements are obvious. Sekaran (2003) described questionnaire as a pre-developed written group of questions compared to that respondents documented their answers. After doing substantial test to extract trustworthy reply from the sample, the structured questions will list in the questionnaire carefully (Hussey and Hussey, 1997). Based on the literature the questionnaire is developed and scrutinized by the expert panel to seek the content validity of the instrument. The length of the questions should be short for reducing fatigue and boredom of the respondents (Lindell and Whitney, 2001).

3.11 Population Definition

The Population is explained as a whole group under research as determined by the purpose of the study (Burns and Bush, 2002). The unit of analysis for this research was the Manufacturing organizations. The study purpose is to survey the impact of Social media and CRM on product innovation and their ability to business performance in Malaysian manufacturing companies. The purpose of population is manufacturing companies in Malaysian. Size of the sample attained from the lists member from the Federation of Malaysian Manufacturer (FMM, 2017) who represent Malaysian manufacturing companies and SME Corp Malaysia a body representing of Small and Medium Enterprises in Malaysia which includes of manufacturing companies. The FMM directory is often utilized as a population frame for companies in Malaysia. FMM was set up in 1968 in fact it is the largest economic organization in Malaysia representing over 2,800 manufacturing (FMM, 2017; FMM Directory, 2015) and SME

Corp Malaysia representing 37,861 manufacturing companies in Malaysia. The Federation of Malaysian Manufacturer (FMM) and SME Corp currently represent almost 40,661 manufacturing companies (SME Corp, 2015, FMM, 2017).

3.12 Data Collection Procedure

3.12.1 The Procedure of Sampling

The present research is used the Federation of Malaysian Manufacturers (FMM) and SME corps as the population frames. The FMM directory is often utilized as a populace frame for firms in Malaysia. FMM was founded in 1968, and it is the greatest economic business in Malaysia representing over 2,800 manufacturing and industrial service companies of different sizes (FMM, 2015). A simple random sampling method was chosen in this study. To ensure the samples selected could meet up with the objectives of this study, respondents were selected from manufacturing companies situated in numerous seven states of Malaysia, namely Selangor, Penang, Johor, Sarawak and Negeri Sembilan, Melaka, Pahang. A selection of respondents operating in all these seven states was made because the states are being among the most industrialized states and economically the quickest developing in Malaysia (FMM, 2017; Kuala Lumpur Framework Strategy 2020).

Recently, email is one of the more popular internet tools available. According to Griffis, Goldsby, and Cooper, (2003) demonstrates which email assess can provide bigger response rate as comparison to examine via send mail despite, certain researchers explained uncertainties in garnering good response rate by researchers performed via email compared. Many other cause reasons for the distribution of email contain costs, easier figuring out, repetitive responses and non response, responding ease and flexibility, benefits of response rate and benefits of response time (Medin, Roy, and Ann,

1999). The cost is also decreased when distributing survey employing e-mail compared with traditional postal mail and also telephone surveys because of the internet's fewer transfer costs and the removing or decrease of paper cost.

The survey was conducted between March 2016 and September 2016. There were a total of 357 responses achieved. 233 Out of 357 were returned from SMEs companies, and 124 returned from FMM companies. The first step was to initiate contacts with HR department of the identified companies. The letters of introduction had been emailed to the addresses got trough the websites of companies. After two weeks, only eight firms responded to the email. Then different approach was used, Letter of introduction was emailed with the promise to share executive summary of findings with their companies. This approach had a good impact on response rate in survey research. Companies who didn't reply email was contacted through phone. Also, researcher used some referral networks and followed ups to increase respondent rate. One of the challenging parts of this study was to contact companies HR department in order to find out who can provide necessary information for this survey, and ask HR to pass the questionnaires to them or let researcher contact them directly, then follow up to get proper answer. Based on the contacts done with HR departments, a member of Top management team, general manager, marketing manager, sale manager and R&D manager were identified as respondents. Constantly, questionnaires have sent to the HR, and they pass the questionnaire to managers such as marketing manager, sale manager and R&D manager and General Managers.

3.12.1.2 Sampling Frame

The frame of sampling is a list of members of the target population from that the sample is taken (Saunders et al., 2009). The frame of sampling in this research includes

units of business Malaysian manufacturing companies that whom is realize to have Social media and CRM systems in place.

3.12.1.3 Sampling Method

A simple random sampling method is the most common method used in statistical studies (Hair et al., 2010). Sampling is about choosing from the specific population, enough elements that allow generalization, and it is a basis for quantitative study; therefore, sample bias must be eliminated from the population by having adequate sample and its randomness (Sekaran, 2003). Sampling is a technique or process of selecting a proper sample to determine characteristics or parameters related to the population (Adams, Raeside, and Khan, 2007). The 1126 companies were randomly selected from sampling frame population from companies using a Simple Random Sampling design. Simple Randomly Sampling is conducted, first through serializing the companies in sample frame and then using the (RAND) function through Excel that is chosen randomly allocate numbers. The Distinctive features of a simple Randomly Sampling process are witch any unit has equal chance to be selected (Thompson, 1992) and it is better when you have a sample frame accurate and readily available that lists the total population is used (Saunders et al., 2009). Randomly sampling is to ensure efficiency, quickly; less cost and produces a further sample of representative (Hayes, 1998).

3.12.1.4 Sample Size

The sample size need will subject on factors including, provided techniques of data analysis, access to sample frame and financial (Malhotra, 1999). At this research is taking Structural Equation Modeling, based on Anderson and Gerbing (1988), the

statistic from chi-square for testing SEM wouldn't be precise for sampling size below 50 and lower stable, and therefore a greater size 150 or further will be desire in quantitative research (Tabachnick and Fidell, 2001). Different authors suggested diverse sample sizes as proper for quantitative study, consist an absolute sample from 200 to 300 (De Vaus, 2007).

In this study, there are 89 items. According to the previous management systems studies in Malaysian manufacturing organizations, the response rate is between 20% and 30% (Low et al. 2015). Hair et al. (2010) recommended a desirable sample size of 200 as minimum and 400 as maximum for Structural Equation Modeling (SEM) studies. Hence the targeted number of usable data in this case is more than 357.

3.12.1.5 Sample Selection

In this research, companies are randomly selected from the companies listing within the (FMM) and (directory of SME). The directory of FMM is often used as a frame of population in Malaysia manufacturing organizations Teng and Ong, (2007), Naimah, A., Nurul, F. H (2013). The choosing companies in the sample are entire manufacturing companies that produce wide range of products, including, electronic, cigarette, food, clothing, industrials equipment, and furniture, etc. Samples are selected from heavily populated and rather different manufacturing companies in order to let the results to be generalized to a larger population. Another reason for the selection of states is because Malaysia's manufacturing organizations are largely concentrated in these states. The majority of manufacturing organizations are established in Selangor (30%), Penang (13.6%), Johor (12.6%), Sarawak (10.3%), and Negeri Sembilan (7.0%) Melaka (4.6%) Pahang (4.6%) (statistic.gov.my, 2016).

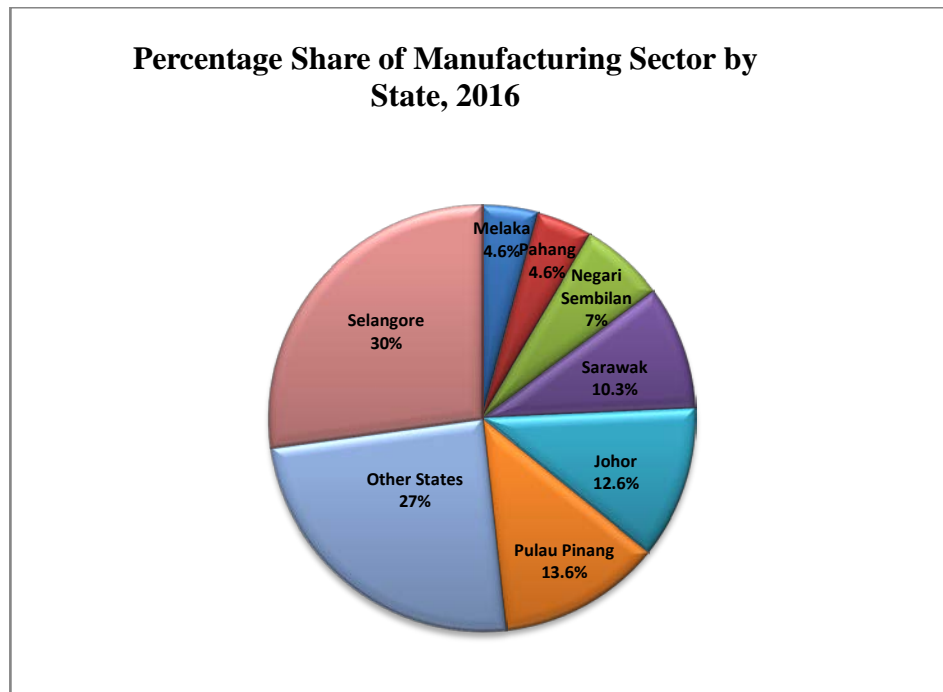


Figure3.2. Percentage Share of Manufacturing Sector by State, 2016

3.12.1.6 Response Rate

Baruch and Holtom (2008) claimed that the average response rate for study that utilized data gathered at the organization level is 35 percent. According to the previous management systems studies in Malaysian manufacturing organizations, the response rate is between 20% and 30% (Low et al. 2015). Because the present research utilized data collected at the organizational level, a benchmark of response rate around 33 percent was considered. In this study out of 1126 questionnaires sent, 374 organizations responded. The discussion of response facilitation techniques has been structured into two categories: (1) timing and (2) techniques.

3.12.1.6.1 Timing

First, a preliminary notification technique using email was employed before the survey distribution. Given that the FMM and SME Corp directory contains the contact details of the organizations, the telephone call was made to each of the selected organizations who refused to reply the email. Jobber and O'Reilly (1998) concluded that the use of telephone calls together with emailing has significantly improved the response rate. For instance, Traina et al. (2005) reported that follow-up reminder phone calls improved the response rate of their email surveys from 52 percent to 61 percent. Since these follow-up methods have been used with great achievement, therefore in this research conducted follow-ups by sending an email and making phone calls reminder.

3.12.1.6.2 Techniques

The lengths of questionnaires are found to have an effect on response rate (Eakeret al., 1998 and Roth and BeVier, 1998). In this regard, the final version of the set of questions was kept short, with 89 questions imprinted on thirteen WebPages. The size of questionnaires should become relatively short in order to help the respondents to total the survey between 10 to 15 minutes. The set of questions distributed was structured into five sections, namely, (1) Section A is general information about the organization, (2) Section B measures the Social media, (3) Section C measures the Customer relationship management (CRM), (4) Section D measures the product innovation and (5) section E measures the business performance. Jobber and O'Reilly, (1998) suggested that anonymity improves response rates. For this reason, responses remained anonymous in the present survey.

3.13 Statistical Analysis

The statistical techniques used to investigate the info for addressing the study questions of the study range between simple descriptive statistics, reliability ensure that you correlation analysis to advanced structural equation modeling (SEM). Through the first stage of examining data, an initial univariate statistical evaluation was executed using the Statistical package for the social Sciences (SPSS) 20 for windows to display screen the data. Screening of data is essential to recognize the existence of outliers and regular distribution. Furthermore, statistical analyses had been also performed to examine the reliability, validity, exploratory factor evaluation and correlation of the scales found in this research. Through the second stage of data evaluation, SEM was utilized to perform the confirmatory aspect evaluation (CFA) , to examine the relations among Social media, CRM, Product innovation and Business performance and also the mediating effect of product innovation between Social media, CRM, and business performance. This approach was adopted because the analysis of this study was best handled by SEM as it allows researchers to examine multiple relationships simultaneously while incorporating measurement error into the estimation process (Frazier et al., 2004). The third phase is to examine the effects of mediation in this study. The hypotheses were proven previously and using the SEM allows testing the effects of mediating, specifically for models with the latent constructs. The SEM application in this research work was performed because of the SPSS 20 for Windows and Analysis of Moment Structures (AMOS) 20. For recognizing the exit of outliers and normal-distribution, screening data is significant. In this study utilized for examining the validity, reliability, EFA, and CFA of the scales employed.

However, AMOS integrates an easy-to-use graphical user interface with an advance computing engine for SEM (Arbuckle, 2005). AMOS is certainly a well recognized program since it is obtainable as an addition to SPSS (Hair, Dark, Babin and

also Anderson, 2010). Getting among the first SEM program to simplify the interface, AMOS is obviously user-friendly specifically users do not need to write computer code or syntax to perform data analysis (Hair et al., 2010). From a theoretical viewpoint, the explanation for using AMOS originates from. Therefore, selecting AMOS program was highly supported because of its intensive usage of testing mediating results in the latest industrial and organizational research.

3.13.1 Data Screening

Many researchers will face the problem of missing data in their survey studies. For example, missing data are expected in part of the research design when some observations in a population are not included in the research sample (Hair et al., 2010). Data must be filtered so that the data is free from distortion, reliable, and valid for testing causal relationships. This type is classified as ignorable because the multivariate techniques can overcome these missing data of no sampled observations by generalizing the findings to the entire population (Hair et al., 2010). Accordingly, the occurrence of missing data is usually anticipated in quantitative research design, but this does not impair the capability of the multivariate techniques to generalize findings to the entire population (Hair et al., 2010). This method can result in a reduction in the sample size and also generate substantial standard errors. Consequent on these, the statistical power can be reduced, thereby increasing the probability of type II error. Furthermore, deletion of missing data without prior investigation could also introduce bias in effect estimates for regression coefficient.

As noted previously, the development of the survey instrument followed through rigorous refinement processes of pre-screening and pilot testing to eliminate ambiguous questions, which are likely to be left uncompleted. Despite the above

initiatives, some data were discovered to be missing. Accordingly, during the data screening stage statistical analysis was conducted to investigate the pattern of missing data. The result revealed that only 4.5% of cases had missing values. Hair et al. (2010) and Babbie (2010) recommend outright deletion of cases with missing values when the extent of missing data is not great enough to affect the sample size. Given the low number of cases of missing data, i.e., less than 5%, the cases with missing values were excluded from further analysis (Savalei and Bentler, 2009). In this study, the outliers were detected using the graphical method that is, residuals scatter plot. An examination of the standardized residuals within the range of ± 3 was performed to facilitate the detection of outliers. Based on the graphical data output, cases with standardized residuals outside the range of ± 3 were considered as outliers.

One of the most critical assumptions for multivariate analysis is normality, which refers to the shape of the data distribution for an individual metric variable, and its correspondence to the normal distribution, the benchmark for statistical methods (Hair et al., 2010). To assess the former, this study conducted statistical procedures to generate the skewness and kurtosis values for all the variables. The reported values for both were within the acceptable values of -2.0 and +3.5 (Lei and Lomax, 2005).

Violation of the normality assumption could adversely affect goodness-of-fit indices and standard errors. Thus results of the model estimation and testing could be biased. Fan and Wang (1998) indicated that SEM estimation method is robust to mild to slightly moderate data non-normality.

Lei and Lomax (2005) specifically noted that non-normality has negligible effects on the parameter estimates for maximum likelihood (ML) in SEM. More recently, Michon and Chebat (2008) posited that SEM has become more tolerant to Non-normality when testing larger sample. This is, in fact, supported by Hair et al. (2010) who stressed that non-normality has negligible effects on a sample size of 200 or higher.

Since this study used a sample of over 200 and employed ML parameter estimation method during the SEM analysis. In addition to the examination of skewness and kurtosis values, this study considered the graphical output of the normal probability plot, which compares the cumulative distribution of actual data values with the cumulative distribution of a normal distribution (Hair et al., 2010). In the normal probability plot, the normal distribution forms a straight diagonal line, and the plotted actual residuals are compared with the diagonal. If a distribution is normal, the line representing the actual residual closely follows the diagonal (Hair et al., 2010). For a normally distributed data set, the actual residuals are plotted along the diagonal line (see Section 4.1).

3.13.2 Refinement and Validation of Instrument

Another two important components of the questionnaire are reliability and validity, which ensures accuracy and consistency of measures what questionnaire, is supposed to measure. In addition to the thorough processes underlying the development of the finalized set of questions, the collected data were exposed to further refinement in order to validate the measurement scales.

3.13.2.1 Reliability

The reliability of a measure shows the degree to which it really is without bias (error free) and therefore insures constant measurement across time and the many items in the instrument. In the additional term reliability of a measure can be an indication of the stability and internal consistency with that your instrument measures the concept and helps to evaluate the goodness of measure (Sekaran, 2003). Reliability is the degrees of that the observed variable represents the true value and if it's free of error (Hair et al.,

2010). Reliability differs from validity because reliability associates not to what should to be measured, but rather to how it is measured (Hair et al., 2010).

A salient issue pertinent to ensuring scale reliability is uni-dimensionality. This affirms that a set of measuring items are associated with a single construct (Sureshchandar et al., 2001). Anderson and Gerbing (1982) premised misspecification of a measurement model on lack of uni-dimensionality. SEM reports the comparative fit index (CFI), as an indicator for uni-dimensionality, with an Acceptable value of 0.90 or above (Sureshchandar et al., 2001). Therefore, the CFI fit indices for all constructs were examined to measure the uni-dimensionality (See Section 4.1).

The Cronbach's alpha coefficients are also measured. The Cronbach alpha coefficients' acceptable lower limit is 0.7, and the value of 0.6 is regarded as being good enough for an exploratory type of study (Hair et al., 2010). To satisfy statistical requirements for measurement reliability in SEM, This research also computes the composite reliability of each measurement scale. Composite reliability can be translated based on the Cronbach's alpha. Thus, according to current research by Hair et al. (2010), the internal consistency approach with a cut-off criterion of having 0.60 or above on the Cronbach's alpha value is utilized to assess the reliability of the study's research instrument.

3.13.2.2 Validity

In validity assessment process, a researcher must ensure the instrument measures the concept that aims to measure, and it does not measure something else. Indeed, this process uses the quantified methods to find how well the construct is defined by its

indicators. Besides, data collected from a pilot test would also be used to measure the validity. Validity will confirm whether the instrument represents what it supposed to measure (Hair et al., 2010). Hair et al. (2006) establish it as the level to which a set of measures correctly represents the concept of study. Zhang et al. (2000) state that validity is the level to which an inquiry instrument or a research tool can gauge what it is expected to achieve. There are two primary types of validity are anticipated to be satisfied in quantitative research content and construct validity (Hair et al., 2010).

3.13.2.2.1 Content Validity

Content validity refers to the role of how efficiently a concept's dimensions are explained (Sekaran and Bougie, 2010). Content Validity is sometimes called face validity and it in involving the assessment of the variables' correspondence included in the summated scale as well as its conceptual description (Hair et al., 2010). The content validity of a questionnaire relates to the representativeness or sampling adequacy of the content. Content validity was a function of how well the dimensions and elements of a concept had been delineated. Face validity was the minimal level of test for content validity (Sekaran, 2003) . It is the degree to which people believed that the survey measured the right area of research. Generally, content validity can't be assessed numerically since it is normally a subjective measure judged by experts (Zhang, 2000). The study instrument was as well pretested to obtain an understandable and unambiguous language prior to the formal distribution of the study instrument.

3.13.2.2.2 Construct Validity

Relating to Bogozzi and Yi (2012), construct validity is the extent to which the indicators associated with a constructed measure what they are supposed to measure the objective of the construct validity is to measure the correlation between the theoretically defined sets of variables. Empirical and theoretical justification for the deduction from a construct is important to confirm construct validity. It's instituted by associating an instrument to a general conceptual framework being studied, so that the connection of the instrument to the theoretical assumption can be confirmed. There are three related issues in construct validity uni-dimensionality, convergent validity and discriminant validity. To be able to fulfill this necessity both convergent and discriminant validity had been assessed.

3.13.2.2.3 Convergent Validity

Convergent validity is the level at which the multiple construct's measures are correlated (Hair et al., 2010). The method variance's insignificance can be determined after meeting the requirements (Mitchell, 1985). The Anderson and Gerbing's (1988) model is used in this study to express the model's convergent validity for measurement. Using the SEM, the convergent validity can be assessed using the measurement model by finding out if each indicator's estimated coefficient is significant on its posited construct factor, which means if it is more than two times its standard error (Anderson and Gerbing, 1988). Also, using the method by Sureshchandar et al. (2001), the Bentler-Bonett coefficient value is tested for each construct. A strong convergent validity is apparent with values that the same or higher than 0.90 (Bentler and Bonett, 1980). Thus, the measurement model's observable constructs' factor loadings test, as well as the

coefficient of Bentler-Bonett, is carried out to examine the convergent validity's scales utilized in this study.

3.13.2.2.4 Discriminant Validity

The level at which two concepts that are the same in a conceptual manner are also similar is examined by the discriminant validity (Hair et al., 2010). The idea for the discriminant validity is true if more than two measurements are unique in a conceptual manner. After that, there will not be many correlations among the valid measurements (Bagozzi, Yi and Phillips, 1991). The correlations analysis evaluates the discriminant validity of the measures (Hair et al., 2010). The discriminant validity is determined when the correlation is lower than 1.0 by an amount more than is two times its own standardized error (Bagozzi and Warshaw, 1990). Consequently, the recommendations given above will be used in this study to test the discriminant validity (Bagozzi and Warshaw, 1990). This study utilizes the suggestions mentioned above by Bagozzi and Warshaw (1990) to examine the discriminant validity.

3.13.3 Statistical Procedure

Hair (2010) argued that one of the statistical methods can apply to analyze interrelationships between big numbers of variables is factor analyses. Factor analysis plays the role to compact the larger set of empirical data into a reduced and precise set of freshly merged factors without losing the important information. Factor analysis classifies in two classifications consist of Exploratory Factor Analysis (EFA); Confirmatory Factor Analysis (CFA). Both EFA and CFA applied for this study.

3.13.3.1 Exploratory Factor Analysis (EFA)

EFA test the measurement items applied for this study. It provides useful information regarding the number of elements represent the data (Hair et al., 2010). In another word, it helps researchers to identify the dimensions (Churchill, 2004) from a large set of the latent construct (Williams et al., 2010). EFA try to examine loading of each scale items across factors and recognize the scale items that strongly load on a particular factor (Gefen and Straub, 2005). Williams et al. (2010) stated that EFA could examine the relationship between variables and also address multicollinearity. In order to identify the existence of the CMV, this study attempted to use the test known as Harman's single factor test. The statistical technique includes the EFA where researchers are required to examine to un-rotated factor solution to identify a number of factors that consider all the variables' variances (Podsakoff et al., 2003). Harman's assumption of the single factor testing denotes that when a substantial CMV quantity is present, i) a singular factor will be demonstrated in the factor analysis, or ii) a general factor would represent many of the covariance's within the measures. Next, the sphericity test is known as Bartlett's test and the MSA (sampling adequacy measurement) tests are run using the EFA to assure the proper inter-relations of the variables to the representative factor's results. The statistical test for the overall importance of every correlation in the correlation matrix is defined using the sphericity test known as the Bartlett's test (Hair et al., 2010). The variables' inter-correlations level and the factor analysis suitability are calculated using the MSA (Hair et al., 2010). The factorability of the correlation matrix is normally assumed if Bartlett's test of sphericity can be statistically significant ($P < 0.05$) and the MSA value is higher than 0.50 (Hair et al., 2010). EFA is a useful test for primary scale development that should follow by CFA for the refinement of the scale.

3.13.3.2 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis is an approach for testing the proposed theory or model and looking for the best model fit (Williams et al., 2010). Basically, CFA offers a confirmatory check for the theoretically structured measurement model (Hair et al., 2010). Regarding to Terblanche and Boshoff (2008) CFA provides a wide of fit indicates when assessing the fit of data established to the theoretical model through the hypothesis testing CFA could examine the relationship between observed variables and the latent constructs. Unlike EFA, CFA can be used to supply a confirmatory test of the measurement theory which takes a construct first end up being defined (Hair et al., 2010). CFA should be used in causal models to accomplish the informative tests of mediation to estimates the indirect results and causal parameters. The initial objective of CFA is to identify whether the predefined factor model able to fit the observed data set or not. This research provided CFA to test the importance of the hypothesized model with the sample data collected.

3.13.3.3 Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a combination of statistical techniques similar to factor analysis, path analysis or multiple regression that take into consideration the modeling of interaction, nonlinearities, measurement error, correlated error terms, multiple independent variables each measured by multiple indicators and/or one or more dependent variables with multiple indicators (Weston and Gore, 2006). Similarly, many authors (Kline, 2005) mention that SEM is capable of testing hypothesized relationships among several concepts, with basic principles which can easily be understood and compared with other popular statistical techniques such as ANOVA, or Multiple Regression. Williams et al. (2009) claim that SEM's functions

are greater than other multivariate techniques, including: multiple regressions, path analysis, and factor analysis because SEM is capable of examining a serious of dependency relationship simultaneously. Also, SEM could stand for both observed and latent variables in a relationship that leads to correct measurement error through the estimation process (Hair et al., 2010). However, they are limited to examine only one single relationship at a time (Hair et al., 2006). SEM permits both confirmatory and exploratory models forming. In other words, SEM is suitable for testing a theory testing and also developing it (Bollen and Long, 1993).

Compared to other statistical methods, SEM has the biggest advantage to develop latent variables (variables which are: measured indirectly; estimated in the model from a number of measured variables; and each measured variable is foreseen to have a role with the latent variables). This enables the researchers to discover the unreliable portions of measurement in the theoretical framework and accurately deduce the structural connection between latent variables. As spotted by Hair et al. (2006), other major advantages of SEM include: (1). Unlike other multivariate techniques, SEM is able of assessing and also correcting measurement error thus providing unambiguous approximations of error variance parameters; (2). SEM can calculate the relationship of an individual self-employed variable with all the dependent variables in the path model operating through multiple phases. The direct and indirect relationships can also be unveiled; (3). SEM can consider the testing of both conceptual and structural models at the same time. SEM is considered as a combined statistical analytical tool which includes factor and regression analysis ;(4). SEM produces the separate equation for each endogenous variable and allows researchers to define multiple dependent relationships that reflect the effect of mediating variables; (5). Data analysis through SEM method can integrate both latent and observed variables whereas conventional data analysis approaches have to base solely on observed measurements; (6). SEM uses confirmatory factor analysis to reduce measurement errors whereas multiple regressions

employ exploratory factor analysis which can only show the dimensions of variables instead of providing confirmation.

The above findings of capabilities and advantages of SEM confirm that to attain the objective of this study and to test the hypothesis, it is most suitable for this study among other statistical methods.

Among all the software, AMOS, LISREL, and EQS are very popular among researchers. For this study, AMOS was selected to perform SEM for the following reasons (1) AMOS can be directly linked to SPSS which is used for summarizing statistics. (2) AMOS has superior graphical interface compared to other packages such as LISREL and EQS. (3) Similarly, Hox (1995) mentioned that every research requires a clear copy of the SEM output and AMOS is the best in this situation. (4) Babin et al. (2008) mentioned that AMOS software has one big advantage that it is very user-friendly for basic applications with an easy-to-use graphical communication. (5) AMOS enables for users to estimate model without ever thinking of writing syntax or program statement (Babin et al., 2008). (6) AMOS is capable of producing mass statistics describing the fit of a measurement model and the significance of parameter estimation (Gallagher et al., 2008). Therefore, using AMOS in this study was justified in this study.

3.13.3.3.1 General Specifications of SEM

According to Hair et al. (2010), there are three types of variables used in SEM: (1) manifest variables; (2) endogenous variables; and (3) exogenous variable . Manifest variables are observed variables or indicators which are gathered through data collection, Endogenous variables are latent unobserved variables, and they are explained by a multi-item equivalent of independent variables and exogenous variables are also

latent unobserved variables, but they are explained by a multi-item equivalent of dependent variables. Since one of the objectives of this study was to predict latent constructs (Social media and CRM) with other latent constructs (Product innovation and business performance), all variables were measured in the data analysis.

To illustrate these general specs of SEM, a schema of a first-order measurement model is certainly proven in Figure 3.1. Figure 3.2 indicates a schema of a general structural model. In this research, the value of observed variables was gathered from respondents through a survey. In cases like this, the unobservable variables in the hypothesized model had been information sharing, consumer involvement, long-term partnership, joint problem-solving and technology-based CRM, product and business overall performance.

3.13.3. 3.1.1 Measurement Model

The basic assumptions of statistics that are suitable for the measurement model were mentioned in the past section based on instrument refinement and validation, and the EFA. After meeting the required conditions for validity and reliability, the emphasis is moved to the factor analysis. The Factor analysis is a statistical approach utilized for testing the interrelationships of the higher number of variables, and in clarifying the factors of the variables that underpin (Hair et al. 2010). CFA and exploratory approach were conducted in this study. The measurement model contains the EFA as well as the CFA, while the latter has been known as the prerequisite for achieving the CFA's good fit (Anderson and Gerbing, 1988). The CFA is a theory-driven technique that examines the link between variables that are latent and those that act as the indicator including the factors (Brown, 2006). The indicator variables are revealed based on the questionnaire's

items or questions. According to the significant theory, the CFA will examine the variables that are latent and those that act as the indicator to establish a relationship.

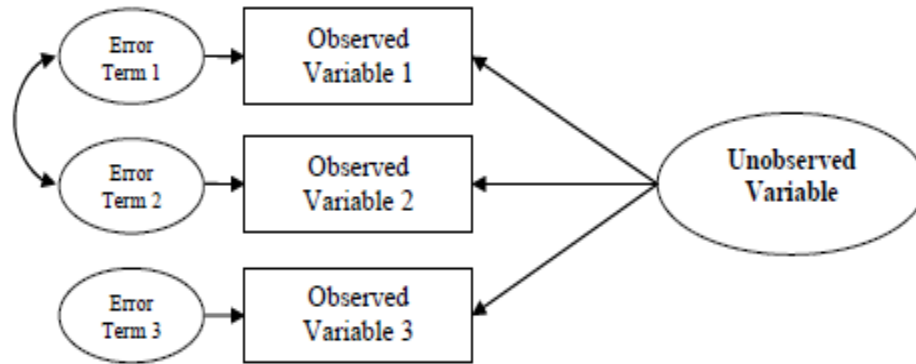


Figure3.3: Schema of First-order Measurement Model

3.13.3. 3.1.2 Structural Model

This model measures the causal exogenous and endogenous paths of the latent variables that are hypothesized. The structural model's results from the SEM underpin the hypothesized links. The hypothesized relationships demonstrate the causal paths of the variables in the AMOS version 20 software. Using the indices for measure-of-fit, and parameter tests estimations and adjustment indices, the model can be re-specified if needed based on the theoretical and empirical justifications. A generic representation of a structural model, consisting of two exogenous variables and an endogenous variable can be showed in Figure 3.4.

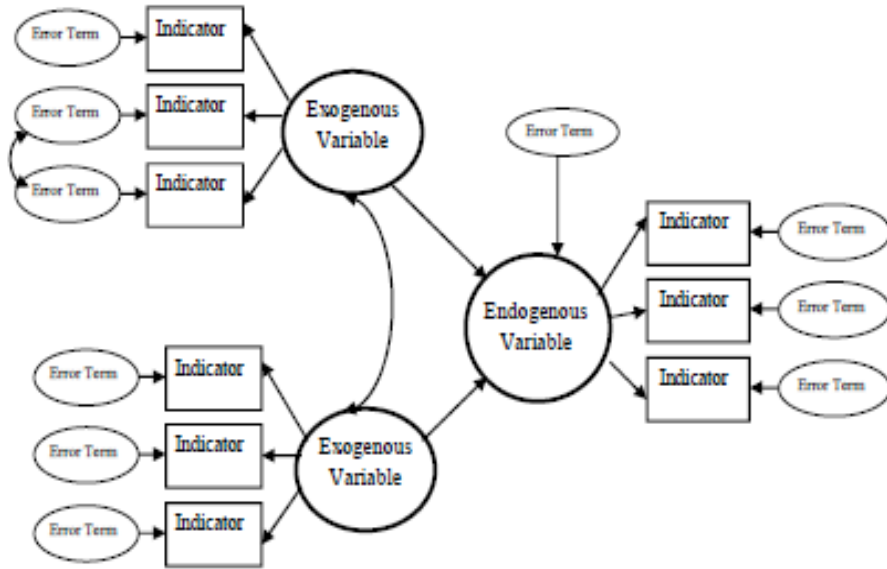


Figure 3.4. Schema of a General Structural Model with Latent Variables

3.13.3.3.2 Steps for SEM

There are five general actions in SEM: consist of: (a) model specification, (b) model identification, (c) model estimation, (d) screening model fit, and (e) model manipulation or model re-specification (Bollen plus Long, 1993) .

3.13.3.3.2.1 Model Specification

Before building a model, an initial theoretical model derived from the literature review is usually to be developed. The parameters are distributed as free of charge and normally set to zero, revealing insufficient relations between in the variables (Hoyle,

1995). Because of this study, the model had been specified from the hypothesized analysis model.

3.13.4.3.3.2 Model Identification

Three various types are used to identify the model such as under-identified, over-identified, as well as just-identified (Byrne 2013). A just-identified model will have got zero degrees of freedom, in additional terms, the value evaluation of each free parameter is definitely only through one, and there is definitely only one manipulation of the observed data. According to Hoyle (1995), the model to estimate must become either just identified or over-identified. In this instance, the models analyzed in this study had been restricted to just-identified or over-identified models.

3.13.4.3.3.2.3 Interpretation of Parameter Estimates

The third step after specifying the models is estimation, which is the stage that includes particular estimation techniques to gain the free parameters' estimates using a set of observed data. Following Kline (2005), the standard estimations are the statistical outcomes calculated with standard factors, while un-standardized estimations are extracted with un-standardized factors such as factors in their first products instead of indicated as Z. scores (normal deviates). Because the most generally utilized evaluation strategies in SEM believe the evaluation of un-standardized estimations, there can be a solid choice in the SEM novels for using un-standardized estimations (Kline, 2005).

Also, a review of the history and latest SEM novels show that many research (Matthews et al., 2010) have examined and reported the un-standardized estimates in the results. In the present study, the un-standardized estimates are reported and analyzed.

The examination of un-standardized estimates was for two reasons. First, the values of un-standardized estimates were analyzed because its interpretation could yield more accurate results with the use of ML estimation method. Second, un-standardized estimates were required for the use of Baron and Kenny (1986) statistic test, which was employed to test the Mediating effects in this study.

3.13.4.3.3.2.4 Testing Model Fit

Testing model fit appraises the level to which model fits the measurement models along with the structural model for the gathered data; several goodness-of-fit indices are used to test how well the three models for piecewise measurement as well as the model of structural sufficiently substantiate the obtained data from the samples. In measurement model, the association between the latent variables and the corresponding observed variables is established. Another important point is that the observed variables which are employed for the investigation of respective latent variables must be tested for their reliability and validity accordingly.

The indicators reported are chi-square statistic (CMIN) goodness-of-fit index (GFI), adjusted goodness of fit index (AGFI), Tucker-Lewis Index (TLI), comparative fit index (CFI), Root Mean Square (RMSEA) and Akaike information criterion (AIC).

Table 3.12: A Summary of Desirable Criteria for the Goodness-of-Fit Indices

Source: (Hair et al., 2010)

Goodness-of-fit Indices	Desirable Criteria
Chi-square statistic (χ^2)	Compare obtained Chi-square value with tabled value for given degree of freedom
Chi-square/Degree of freedom (CMIN/DF)	Less than 5 indicates an adequate fit
Root-Mean-Square error (RMSEA)	Value less than 0.08 indicates a good model fit
Goodness-of-fit (GFI)	Value close to 0.90 reflects a good fit
Adjusted GFI (AGFI)	Value adjusted for df, with 0.80 being a good model
Normed Fit Index (NFI)	Value adjusted for df, with 0.80 being a good model
Tucker-Lewis Index (TLI)	Value close to 0.90 reflects a good fit
Comparative Fit Index (CFI)	Value adjusted for df, with 0.90 being a good model

3.13.4.3.3.2.4.1 Incremental Fit Measures

The incremental fit indices are measures derived from the comparison of the Chi-square value to a baseline model (Hooper et al. 2008). Incremental fit measures make a comparison between the hypothesized models against a standard baseline model (Byrne 2013). The most popular baseline model is the null model, in which all observed variables are allowed to have variances but are uncorrelated with each other (Hair et al., 2010). Bentler's Comparative Fit Index (CFI) and Tucker-Lewis Fit Index (TLI): are two incremental fit indices reported in this research. These measures were used to

indicate the proportion in the improvement of the overall fit of a model relative to a null model (Kline 2011).

Consequently, Bentler (1990) has suggested that the CFI value should be the index of choice and is the most commonly reported in research. The CFI measures a comparison of the hypothesized model against a baseline model which typically is the independence model or null model (Byrne 2013). The CFI value lies in between 0 and 1. According to Schaufeli et al. (2009), a value greater than 0.90 for CFI indicates an acceptable fit to the data. Likewise, the CFI value less than 0.90 is not considered as indicative of good fit (Hair et al., 2010). TLI is another relative comparison of the proposed model to the null model. McDonald and Marsh (1990) advocated the use of TLI for testing null models. In practice, the TLI is not normed, and thus its values need not have a 0 to 1 range (Hair et al., 2010). However, a value of 0.90 or greater for TLI is an indicative of well-fitting models (Ployhart and Vandenberg 2010).

3.13.4.3.3.5 Model Re-specification

If the model fit indices show a poor fit, the following step would be to manipulate the model or to re-specify the model, where a model modification is needed which would then be assessed. Four methods to re-specify the model indicators (Anderson and Gerbing, 1988) include i) associating the indicator with a different factor; ii) removing the model's particular indicator, iii) associating the indicator with many factors, or iv) using correlated measurement errors. Researchers normally rely on the modification indices or MI, using it as a guideline to detect specification errors to determine the method to modify the model. The MI indicates to the researcher whether to add or remove the links that influence the model's fit. Nevertheless, Anderson and

Gerbing (1988) reiterate that decisions on re-specification must not be solely based on statistical output and should also be based on the content and theoretical considerations.

3.13.4.4 Test of Mediating Effects

The mediator refers to a variable that takes into consideration the relationship among the dependent (outcome) and independent (predictor) variables (Baron and Kenny, 1986). The mediator reflects the asymmetric relationship of the variables in the research (MacKinnon, 2008). A structural model that includes the independent, dependent, as well as the mediator variables, can result in an indirect effect. The indirect impact is based on the mediation (Hair, et al., 2006). Following to MacKinnon et al., (2002), mediation is certainly a term derived by psychological literature, and indirect impact is a term additionally used in sociology. This model includes inter-relations of three latent independent, dependent, and mediating variables. Given the current context, this framework was utilized to test the hypothesized effect of Social media, CRM on product innovation and business performance. This method depends on the bootstrap technique, which is a statistical processed utilized to assess the prominence of the mediating impact. Even though, in recent researches, SEM has used this method to test the mediation effect.

The bootstrap technique introduced Preacher and Hayes (2008) is a non-parametric based re-sampling test. The key criterion in this technique is it does not depend on the assumption of normality, and can, therefore, be utilized for sample sizes that are small (Hair et al., 2014; Pardo and Roman, 2013). This technique is better than the Sobel's test as it assists in determining the effect of mediation with surety. With this technique, bootstrapping can be utilized twice; firstly, without mediation being present and secondly, with mediation being present. The mediating effect is considered not

present if the direct path is not significant (Wong, 2015; Hair et al., 2014). Thus, this study utilized the bootstrap method to validate the model to test the mediating effect (Section 4.8.2).

3.14 Chapter Summary

This chapter detailed the research methodology and all related steps to accomplish the necessary tasks. The development of the research survey instrument, population and sampling method were discussed in details. This research addressed the issues of Validity and Reliability adequately. The data collection and analysis techniques have been thoroughly explained. Lastly, the outcome of the pre-test questionnaire as well as the Pilot Test proved the research instrument's validity and reliability. Various aspects of EFA (Exploratory Aspect analysis), CFA (Confirmatory Factor Analysis) and SEM were made clear, and reasons to employ these statistical tools were justified. The next chapter will discuss data analysis and disclose the result of this study.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

The previous chapter discussed the methodology of the study, data collection, and detailed research design. This chapter focuses on the analysis of the collected data by using the methodology and discusses the statistical analysis and results through a series of tables and figures. The findings of this study are founded on the responses of 357 completed email survey. Section 4.3 presents the descriptive analysis of participating firms from the survey. The next Section 4.4 demonstrates the findings of the data's normality test. Section 4.5 presents the Exploratory Factor Analysis while Section 4.6 addresses the Confirmatory Factor Analysis. Section 4.7 reports the overall testing of the model used for measurement. The last section of the chapter which is Section 4.8 presents the estimation of the structural model, the mediating effects, as well as the hypotheses testing.

4.2 Descriptive Results

Demographic Questions were included in the first part of the questionnaire. Upon completing the data cleaning and screening, the descriptive data were analyzed. The main purpose of these demographic questions was to allow analysis of sub-groups of the participants and related to social media, CRM and product innovation in the Manufacturing Industry in Malaysia. Analysis of sub-groups is very useful in any survey. Analysis of sub-groups, especially in large sample sizes, would disclose information that would be missed by assessing the aggregate data. However, this cannot be done for small sample size (less than 100 or so). Upon pretesting and amending, the

survey questionnaire accompanied by a covering letter was emailed in March 2016, and total of 1126 survey questionnaires was e-mailed to manufacturing organizations with social media and CRM in place, as identified from the list published by FMM and SME Corp. However, from the analysis, this research excluded observations with missing data. The questionnaire e-mailing yielded 374 questionnaire returns. Ultimately, a total of 357 completed and usable questionnaires were considered. For easy reference, following were the ten questions asked in Section A of the questionnaire for Demographics and General information about the company.

4.2.1 Type of Organization

According to Table 4.1, during the data collection period, there was no selection or discrimination made on the types of organization, of the total of valid 357 responses, 124 was manufacturing companies and 233 Small and Medium Enterprises. Hence, both the types of organizations will be almost equally represented in this study.

Table 4.1: Type of Organization

	Frequency	Percent	Valid Percent	Cumulative Percent
MNC	124	34.8	34.8	34.8
Valid SME	233	65.2	65.2	100.0
Total	357	100.0	100.0	

4.2.2 Number of Employees

Results show that in table 4.2 the percent of a number of employees in the organizations. The results indicated that more than 50 percent of the respondents have fewer than 500 employees in their organizations. This is because the number of Small and Medium Enterprise (SME) in Malaysia is higher than the big organization. The next highest numbers of respondents' organizations have employees between 500-999 employees. 9.3% of organizations have employee's between 1000-1999, and lastly, there are 8.1% respondents in this study who work for companies with more than 2000 employees. Only a few companies in Malaysia have more than 2000.

Table 4.2: Number of Employees

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 100	102	28.5	28.5	28.5
100-499	131	36.7	36.7	65.2
500-999	62	17.4	17.4	82.6
Valid 1000-1999	33	9.3	9.3	91.9
2000 and above	29	8.1	8.1	100.0
Total	357	100.0	100.0	

4.2.3 Organization Age

Results show that in Table 4.3 Most of the respondents (53.2%) was from companies having above ten years age, 37% of companies' age is between 3 and 10 years, and 9.8% of companies' age is less than three years.

Table 4.3: Organization Age

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 3 years	35	9.8	9.8	9.8
Valid Between 3 and 10	133	37	37	46.8
Above 10 years	190	53.2	53.2	100.0
Total	357	100.0	100.0	

4.2.4 Social Media Play an Important Role

Results show that in Table 4.4, 96.6% of manufacturing companies respond that social media play an important role in their organization and 3.4% respond that social media play an important role in your organization.

Table 4.4: Social Media play an Important Role

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid YES	345	96.6	96.6	96.6
NO	12	3.4	3.4	100.0
Total	357	100.0	100.0	

4.2.5 Type of Social Media

Results show that in Table 4.5, 6.5% of companies are using Twitter, 11% of companies are using Facebook, 13.5% companies are using Instagram as main social media tools and 69% of companies are using combination of different social media tools (Instagram, Twitter, Facebook, Telegram, Snapchat, etc).

Table 4.5: Type of Social Media

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid twitter	23	6.5	6.5	6.5
Facebook	39	11	11	17.5
Instagram	48	13.5	13.5	31
Combination of different social media tools	247	69	69	100
Total	357	100.0	100.0	

4.2.6 Using Social Media

Results show that in Table 4.6 Most of the companies (37.6%) are using social media between 5-6 years, 28.9% of companies are using other social media tool between 7 years above, 26.3% of companies are using social media between 3-5 years and 7.2% of companies using social media between 1-2 years.

Table 4.6: Using Social Media

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-2 years	26	7.2	7.2	7.2
3-4 years	94	26.3	26.3	33.5
5-6 years	134	37.6	37.6	71.1
7 years above	103	28.9	28.9	100.0
Total	357	100.0	100.0	

4.2.7 Important of CRM System

Results show that in Table 4.7 low importance of CRM system for the companies is 1.1%, slightly importance of CRM is 2.8%, neutral is 5%, moderately importance is 27.5 and 63.6% are very important.

Table 4.7: Important of CRM System

	Frequency	Percent	Valid Percent	Cumulative Percent
Low Importance	4	1.1	1.1	1.1
Slightly Important	10	2.8	2.8	3.9
Neutral	18	5	5	8.9
Moderately Important	98	27.5	27.5	36.4
very important	227	63.6	63.6	100.0
Total	357	100.0	100.0	

4.2.8 Number of Customers in Social Media

Table 4.8 shows the number of customers in companies' social media. 4% of manufacturing companies were found to be having below 100 of a number of customers in their social media tools. 32.5% of companies having 100-999 numbers of customer in their social media, 34.5% of companies having 1000-4999 numbers of customer in their social media, and 29% of companies having 5000 and above numbers of customer in their social media.

Table 4.8: Number of Customers in Social Media

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below 100	14	4	4	4
100 – 999	116	32.5	32.5	36.5
1000 – 4999	123	34.5	34.5	71
5000 and above	104	29	29	100.0
Total	357	100.0	100.0	

4.2.9 Level of Turnover

Table 4.9 shows the business turnover of the organizations. 3.6% of manufacturing organizations were found to be having below one million business turnovers. 45.4 % of the respondents indicated that their organization has an annual turnover of above 10 million. The categories Between 1 – 10 million consists of only the SMEs. Hence, it can be concluded that most of the organizations are considered to be medium and large organizations.

Table 4.9: Level of Turnover

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below 1 mil	13	3.6	3.6	3.6
1 – 10 mil	162	45.4	45.4	49
10 – 100 mil	98	27.5	27.5	76.5
over 100 mil	84	23.5	23.5	100.0
Total	357	100.0	100.0	

4.3 Exploratory Data Analysis

This section discusses the results of descriptive analyses, test of normality and scale reliability for the (customer motivation, customer collaboration, E-wom, information sharing, customer involvement, joint problem solving, long-term partnership, technology-based CRM); product innovation and business performance. These statistics are helpful to identify out-of-range values; estimate means standard deviations, skewness and kurtosis and the item-total-correlation. The detailed descriptions of the statistical analyses for each of the variables are presented next.

4.3.1 Customer Motivation

Table 4.10 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on customer motivation. The results of item-total correlation are accepted as reliable since all items have exceeded the value of 0.3, a cutoff point proposed by Flynn et al. (1997) and Nunnally and Bernstein (1994). As presented in (Table 4.11), the overall items for customer motivation reveal a mean score of 3.47, and it shows that the firms possess a high perception of customer motivation dimensions. The reliability of the total scale of customer motivation is considered high, with the Cronbach alpha value of 0.765, which is greater than the acceptable value of 0.6 recommended by Hair et al. (2010). A high alpha value indicates a good internal consistency among the items within the scale.

Table 4.10: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Customer Motivation Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
M1	Learning benefits leads to customer motivation, which will enhance customer's knowledge about the product in your organization.	3.50	0.813	0.190	-0.439	0.710
M2	Learning benefits will motivate customers and leads them to share their ideas and knowledge with your organization.	3.80	1.323	0.302	-1.046	0.587
M3	Social integration motivates customers for participating by receiving certain type of recognition in your organization.	3.45	0.878	0.153	-0.643	0.766
M4	Social benefits could strengthen a consumer's willingness to interact and exchange information in your company.	3.54	0.958	-0.028	-1.064	0.716
M5	Social integration will raise customer's status/reputation as expert in their personal network which will affect productivity in your organization.	3.88	0.813	0.099	-0.820	0.634
M6	Personal integration improves customer's satisfaction in the form of helping your organization to design better products.	3.23	1.168	0.264	-0.898	0.502
M7	Social networks could make customer's willingness for interacting with your organization as well as other customers.	3.82	1.315	0.292	-1.016	0.673
M8	Personal integration will make customers feel that their feedback is respected as contribution for innovation or improvement in your organization.	3.87	0.957	0.172	-1.219	0.656
M9	In your organization, Hedonic benefits offer customers enjoyment from problem solving, idea generation through customer motivation.	2.90	1.224	0.133	-1.016	0.439
M10	Appropriate rewards for participating in co-creation will motivate customers for participating in activities in your organization.	3.80	1.331	0.268	-1.038	0.639
M11	In your organization, customers get things like bonuses or status enhancement being active in co-creation.	3.03	0.932	0.058	-0.727	0.688

Table 4.11: Descriptive Statistics for Customer Motivation Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1.18	5	3.475	0.755	0.312	0.501	0.765

4.3.2 Customer Collaboration

Table 4.12 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on customer collaboration. The results of item-total correlation are accepted as reliable because all items are above the value of 0.3, a cutoff point proposed by (Flynn et al., 1997 and Nunnally and Bernstein 1994). The overall items for customer collaboration reveal a mean score is 3.62, and this indicates that the firms possess a high perception of customer collaboration (Table 4.13). The revised Cronbach alpha values for the 7-items are 0.717, and this is more than the expected value of 0.6 as recommended by (Hair et al. 2010).

Table 4.12: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Customer Collaboration Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
C1	In your organization, customers are a priority to provide major inputs that Improve the quality of innovation.	3.60	1.180	-0.685	-0.402	0.461
C2	Having close partnership with customers during product development may help to provide access to resources that organization lack in.	3.46	1.138	-0.291	-0.672	0.357
C3	In your organization, customer collaboration may lead to an advantage in terms of product innovation, based	3.50	0.916	-0.430	-0.495	0.566

	on customer needs and wants through social media.					
C4	In your organization adopting the suggestions from customer collaboration through social media and structure their products to have better corresponding to the desires and needs of customers.	3.56	0.685	-0.839	1.199	0.430
C5	Your organization uses customer expertise in products, by using information collected from social media.	3.81	0.840	-0.716	0.551	0.537
C6	In your organization, customer collaboration could be an important tool to get information about customer preferences using data which is gathered from social media.	3.88	0.887	-0.419	-0.338	0.536
C7	Social media tools have potential to increase customer collaboration and innovation in your organization.	3.92	0.838	-0.352	-0.331	0.435

Table 4.13: Descriptive Statistics for Customer Collaboration Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
2.14	5	3.621	0.593	0.308	-0.270	0.717

4.3.3 Electronic Word of Mouth (E-WOM)

Table 4.14 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on E-WOM. The table shows that except item W1, the item-total correlation for all the other items is more than the lowest cut-off point of 0.3 (Flynn et al., 1997; Nunnally and Bernstein, 1994). As such, the one item is removed. The revised Cronbach alpha values for the 7-items are 0.751, and this is more than the expected value of 0.6 as

recommended by Hair et al. (2010). The overall items for EWOM reveal a mean score of 3.57 (Table 4.15). It shows that the firms possess a high perception of the EWOM dimensions.

Table 4.14: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Electronic Word of Mouth Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
W1	Your organization has willing to follow consumer opinions online via social media.	3.46	1.181	-0.441	-0.829	0.275
W2	Your organization has willing to utilize consumer feedback in developing products using social media.	3.67	1.168	-0.828	-0.156	0.514
W3	Your organization uses discussion in social media to forecast customer trends.	3.49	0.966	-0.364	-0.847	0.486
W4	E- Word of mouth makes customers share their views and experiences in the social media which can be used for product innovation in your organization.	3.68	0.779	-0.686	-0.113	0.452
W5	The number of E-WOM messages can be used to predict the Success of a product or innovative products in your organization.	3.60	0.762	-0.733	-0.229	0.602
W6	Customer opinions which are gathered through social media play a significant role in innovation in your organization.	3.88	0.998	-0.559	-0.832	0.536
W7	Your company discovers useful information from customer's E-WOM messages to promote new product effectively.	3.64	1.149	-0.744	-0.185	0.578

Table 4.15: Descriptive Statistics for Electronic Word of Mouth Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1.71	5	3.570	0.707	-0.173	-0.76	0.751

4.3.4 Information Sharing

Table 4.16 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on information sharing. The table shows that except items S9 and S10, the item-total correlation for all the other items is more than the lowest cut-off point of 0.3 (Flynn et al., 1997; Nunnally and Bernstein, 1994). As such, the two items are removed. The revised Cronbach alpha values for the 8-items are 0.756, and this is more than the expected value of 0.6 as recommended by (Hair et al. 2010). The overall items for information sharing reveal a mean score of 3.51 (Table 4.17). It shows that the firms possess a high perception of the information sharing dimensions.

Table 4.16: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Information Sharing Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
S1	Information sharing between customers and your organization has a great deal of impact in maintaining a long-term relationship between two parties.	3.48	0.999	-0.306	-0.522	0.723
S2	Sharing information between customers and your organization can enhance the new product's value.	3.38	1.060	-0.325	-0.491	0.534

S3	In your organization greater sharing of information with customer may improve product quality and innovation.	3.55	0.967	-0.577	-0.033	0.605
S4	Your organization shares market Information with customers(promotion information and competitive product information)	3.57	0.991	-0.427	-0.004	0.412
S5	Your organization shares market demands information with customers.	3.29	1.052	-0.315	-0.889	0.521
S6	In your organization, high quality information from customer leads to build products which receive higher level of satisfaction. (Information quality)	3.64	0.981	-0.446	-0.297	0.685
S7	In your organization, information sharing between manufacturers and customers can improve the trust between two parties.	3.59	1.104	-0.453	-0.600	0.516
S8	In your organization higher value of new product could be result of using higher quality customer's information.	3.68	0.957	-0.968	0.354	0.349
S9**	In your organization, sharing information allows the customers to be always informed and through the points of contact in which they are most likely interested.	3.43	0.971	-0.370	-0.461	0.104
S10**	In your organization, customers are the main source of innovative ideas for making new products.	3.49	0.831	-0.579	-0.191	0.282

Table 4.17: Descriptive Statistics for Information Sharing Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1.60	5	3.519	0.673	0.286	0.159	0.765

4.3.5 Customer Involvement

Table 4.18 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on customer involvement. Items within constructs are correlated because the correlation between the item and another item within the same construct is greater than 0.3, a cutoff value suggested by Flynn et al. (1997) and Nunnally and Bernstein (1994). The overall items for customer involvement reveal a mean score is 3.40 (Table 4.19). It shows that the firms possess a high perception of the customer involvement dimensions. The revised Cronbach alpha values for the 8-items are 0.755, and this is more than the expected value of 0.6 as recommended by (Hair et al. 2010).

Table 4.18: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Customer Involvement Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
I1	The key clients are involved in new product activities in your organization.	3.35	0.868	-0.209	-0.201	0.583
I2	The key clients are involved in your organization with modifying new products.	3.24	1.039	-0.287	-0.292	0.450
I3	The key clients are involved in periodically reviewing operations with your organization.	3.45	0.995	-0.242	-0.260	0.638
I4	Your organization periodically reviews product development system to ensure that they are in line with customer's needs.	3.59	0.769	0.111	-0.442	0.616
I5	In your organization, customer involvement can enhance the development of differentiated products and fulfill their needs and desires.	3.63	0.806	-0.310	-0.409	0.654
I6	In terms of innovation, your company doesn't risk much in customer's involvement. (3.44	0.858	-0.899	1.128	0.594

	because of the threat of losing the confidential data, ideas to the competitors)					
I7	In your organization, intensity interactions can be considered as an inspiration for the ideas generated on within the organizations which can be used to develop new products through CRM.	3.34	0.961	-0.389	-0.235	0.524
I8	Customer feedbacks and comments on web platforms can be used by your organization in the process of interaction with customers.	3.45	0.787	-0.389	-0.235	0.594

Table 4.19: Descriptive Statistics for Customer Involvement Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1.88	4.88	3.407	0.593	0.054	0.035	0.755

4.3.6 Long-term Partnership

Summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on long-term partnership, while a summary of the descriptive statistics of long-term partnership scale is presented in (Table 4.20). The results of item-total correlation are accepted as reliable because all items are above the value of 0.3, a cutoff point proposed by Flynn et al. (1997) and Nunnally and Bernstein (1994). The overall items for long-term partnership reveal a mean score of 3.51 that is above the midpoint of 2.5; it shows that the firms possess a high perception of the long-term partnership dimensions. The reliability of long-term partnership scale is established as the Cronbach alpha value of the total scale of the long-term partnership is reported at 0.813, which is above the acceptable value of 0.6 suggested by (Hair et al. 2010).

Table 4.20: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Long-term Partnership Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
L1	Long term partnership between your company and customers, will help to have many benefits for both sides.	3.46	0.972	-0.615	0.285	0.673
L2	Your company maintains interactive, two-way communication with customers.	3.57	0.901	-0.721	0.701	0.595
L3	Your organization cares about long term partnership with customers.	3.61	0.837	-0.162	0.038	0.670
L4	Your organization is committed to improving products in whatever customers suggest.	3.55	0.919	-0.224	-0.396	0.632
L5	Customers are committed when they have mutual trust with your company.	3.51	0.904	-0.422	0.160	0.431
L6	The clients trusted by your organization are willing to provide suggestions for their products.	3.51	0.908	-0.242	-0.064	0.571
L7	In your organization the trust is crucial in building longer term bonding with customers.	3.39	1.141	-0.099	-0.997	0.393
L8	With mutual trust and understanding, your company is able to maintain close partnerships with customers.	3.54	0.862	-0.267	0.139	0.695

Table 4.21: Descriptive Statistics for Long-term Partnership Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1.63	5.00	3.516	0.6147	-0.147	0.678	0.813

4.3.7 Joint Problem Solving

Table 4.22 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on joint problem-solving. Given that all item-total correlation has exceeded the value of 0.3, a cutoff value suggested by Flynn et al. (1997) and Nunnally and Bernstein (1994), the initial scale reliability is established. The overall items for joint problem solving reveal a mean score are 3.53 (Table 4.23). This implies that the organizations perceived a strong relationship towards the dimensions of joint problem-solving. The Cronbach alpha values for the 6-items are 0.827, and this is more than the expected value of 0.6 as recommended by (Hair et al. 2010).

Table 4.22: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Joint Problem solving Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
J1	The key clients work with your organization to solve problems in product design.	3.57	0.874	-0.228	-0.154	0.570
J2	In your organization, it's necessary for the exchange partners share information relevant to the products problems.	3.54	0.856	-0.226	0.051	0.632
J3	In your organization joint problem solving will increase, the collaboration and recognition of new information.	3.57	0.879	-0.577	0.512	0.629
J4	Joint problem solving allows your organizations to draw on the insights, experience, and ability that firm customers have capability.	3.52	0.901	-0.208	-0.128	0.509
J5	Joint problem solving is easier for your organization to enhance product quality and technical ability.	3.46	0.967	-0.598	0.266	0.755
J6	Joint problem solving will improve the learning for your organization which happens in exchange relationships.	3.55	0.961	-0.362	0.005	0.676

Table 4.23: Descriptive Statistics for Joint Problem Solving Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1.17	5	3.533	0.682	-0.465	0.724	0.827

4.3.8 Technology-based CRM

Table 4.24 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on technology-based CRM. Given that all item-total correlation has exceeded the value of 0.3, a cutoff value suggested by Flynn et al. (1997) and Nunnally and Bernstein (1994), the initial scale reliability is established. The overall items for technology-based CRM reveal a mean score is 3.65 (Table 4.25). This implies that the organizations perceived a strong relationship towards the dimensions of technology-based CRM. The Cronbach alpha values for the 13-items are 0.847, and this is more than the expected value of 0.6 as recommended by (Hair et al. 2010).

Table 4.24: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Technology-based CRM Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
T1	Your organization uses a call centre or computer telephone integration to deal with demands of customer, complaints, and suggestions.	3.75	0.973	-0.662	0.246	0.544
T2	Your organization uses a service centre to deal with customer suggestions.	3.44	1.052	-0.190	-0.690	0.364
T3	Your organization has an integrated customer relationship management (CRM) performance evaluation system.	3.50	1.083	-0.390	-0.431	0.490

T4	Your organization uses data ware housing and data mining to save customers' information for identifying that the potential customers are more valuable.	3.55	0.969	-0.624	0.153	0.468
T5	Your organization establishes perfect web-based customer interaction.	3.54	1.029	-0.593	-0.189	0.491
T6	Your Organizations utilizes technology as a key tool for improving the flow of information in their business.	3.69	1.076	-0.655	-0.040	0.486
T7	Information flow will help your organization to have interactive communications with your customers.	3.66	1.039	-0.556	-0.078	0.490
T8	In your organization flow of information is regarded as a crucial element of CRM mechanism.	3.78	1.041	-0.825	0.272	0.576
T9	The capture of information in your organization can be the ability in collecting and storing the relevant information pertaining to the customers.	3.61	1.085	-0.591	-0.289	0.469
T10	In your organization capture of information is a crucial dimension in CRM systems.	3.54	1.040	-0.426	-0.289	0.504
T11	Capture of information can aid in your organization having long terms association with the customers in the long run.	3.83	0.966	-0.750	0.382	0.582
T12	Usage of information is an important component of CRM systems in your company.	3.75	0.940	-0.645	0.280	0.554
T13	In your organization, information usage is the ability for using information pertaining to customers for developing customer profiles and target market.	3.94	0.859	-0.523	-0.186	0.516

Table 4.25: Descriptive Statistics for Technology-based CRM Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1	5	3.659	0.602	0.036	0.996	0.848

4.3.9 Product Innovation

Table 4.26 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of the items for product innovation. The item-total correlation for all the items is more than the lowest cut-off point of 0.3 (Flynn et al., 1997; Nunnally and Bernstein, 1994). The values of the skewness and kurtosis tests for all items are lower than ± 1.0 except for items P9 and P10 that show values of kurtosis that is more than 1. The overall items for product innovation reveal a mean score of 3.38 (Table 4.27). It shows that the firms possess a high perception of the product innovation dimensions. The Cronbach alpha value of the total scale of the product innovation is 0.857, and this is more than the expected value of 0.6 as recommended by (Hair et al. 2010).

Table 4.26: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Product Innovation Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
P1	Your organization launches new products to the market.	3.37	1.029	-0.004	-0.160	0.505
P2	Your organization frequently tries out new ideas.	3.32	1.057	-0.171	-0.173	0.576
P3	In your organization new products, expands new markets.	3.43	1.000	-0.055	-0.261	0.520
P4	Your organization launches customized products according to market demands.	3.39	0.996	-0.249	-0.011	0.656
P5	Your organization has developed new product lines.	3.32	1.084	-0.155	-0.340	0.543
P6	Understanding customer needs during implementation the new products in company is important in order to have effective product innovation.	3.34	0.994	-0.006	-0.156	0.754
P7	Collaboration with external sources has become successful experience with product innovation in your organization.	3.39	0.941	0.020	-0.043	0.672

P8	Your organization is able to reduce the time to develop a new product until it is launched to the market.	3.45	1.099	-0.155	-0.461	0.468
P9	Your organization creating innovative products that are new to your company.	3.41	1.112	-0.059	-0.629	0.448
P10	The market needs to play a crucial role in the implementation of innovations in your organization.	3.38	1.033	-0.147	-0.185	0.544

Table 4.27: Descriptive Statistics for Product Innovation Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1.00	5.00	3.380	0.685	0.791	0.928	0.857

4.3.10 Business Performance

Table 4.28 provides the summary of the standard deviation, means, the results of the skewness and kurtosis tests, and the item-total-correlation of all the items on business performance. Items within constructs are correlated because the correlation between the item and another item within the same construct is greater than 0.3, a cutoff value suggested by Flynn et al. (1997). The overall items for business performance reveal a mean score of 3.46 (Table 4.29). It shows that the firms possess a high perception of the business performance dimensions. The Cronbach alpha values for the 9-items are 0.793, and this is more than the expected value of 0.6 as recommended by (Hair et al. 2010).

Table 4.28: Means, Standard Deviations, Skewness and Kurtosis Values, and Item-total correlation of the Business Performance Items

Item Code	Item	Mean	Std. Dev. ^a	Skewness	Kurtosis	Item-total Correlation
B1	In your organization, profitability of this year increased compared to last three years.	3.51	0.908	-0.242	-0.064	0.537
B2	Product innovation increases the general profitability of your organization.	3.54	0.862	-0.267	0.139	0.664
B3	Innovation increase sales by increasing product consumption and additional yield profit in your organization.	3.35	1.136	-0.054	-1.004	0.503
B4	Market share can increase your firm performance by achieving more sales.	3.61	0.837	-0.162	0.038	0.553
B5	Product innovation increases the market share in your organization.	3.46	0.972	-0.615	0.285	0.646
B6	In your organization, market share of your product for this year increased compared to last three years.	3.55	0.919	-0.224	-0.396	0.612
B7	Your organization is able to manage as well as directing its volume of sales.	3.42	0.853	-0.440	0.367	0.470
B8	In your organization, innovation is one of the most consistent drivers of sales volume.	3.20	1.099	0.128	-0.966	0.339
B9	In your organization, sales volume of this year increased compared to last three years.	3.57	0.901	-0.721	0.701	0.509

Table 4.29: Descriptive Statistics for Business Performance Scale

Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach Alpha
1.56	5.00	3.4	0.581	-0.272	0.580	0.793

4.4 Scale Development and Validation

4.4.1 Data Screening

The initial step in the analysis that may be overlooked by researchers is data examination, which is necessary but time-consuming and helps researchers to identify outliers and evaluate the effect of missing data (Hair et al., 2010). This step is a prerequisite for applying SEM, which is a multivariate statistical technique that needs certain assumptions on the data regarding accuracy and distributional characteristics.

4.4.1.1 Missing Data

As mentioned in Section 3, this research manages missing data by removing observations with missing data from the analysis. The main issue, in this case, is whether the available samples is enough given the removal. Little and Rubin (2014) and (Hair et al., 2010) mentioned that Missing data under 10% for an individual case or observation can generally be ignored. After removing the observations with values that are missing, the sample utilized was sufficient for this research, resulting in a total of 374 samples.

4.4.1.2 Outliers

While carrying out the data screening process, 17 observations required removal from 374 responses since they had outliers. These outliers were noticed after utilizing the graphical approach which is the residual scatter plot. The assessment of the standardized residuals in the ± 3 range shows that the 17 responses were outliers among the variables. Finally, 357 responses were utilized for the purpose of analysis, with a net

response rate of 33%, which means obtained sample size is more than the expected guideline ($N > 200$).

4.5 Exploratory Factor Analysis (EFA)

The exploratory factor was utilized to carry out the examination of the data and the information on the factors. It is necessary to have the number of factors in order to represent the most beneficial data as well as to find out the uni-dimensionality of the construct prior to the Confirmatory Factor Analysis (CFA). Thus, each construct's items are individually also a factor in observing the constructs' uni-dimensionality in the hypothesized model (Hadi et al., 2016). According to Hair (2010), the EFA is an interdependent approach that defines the underlying structure out of the indicators in the analysis. There are no dependent or independent variables in this approach and all the variables are taken into consideration at the same time. It reflects in the interrelationships of a proposed number variable and defines them based on their underlying factors.

EFA is used to discourse the issue of common method variance (CMV) and to scan for uni-dimensionality issue of the constructs before applying CFA. EFA would reveal the underlying factor structure and enable it to be identified, and EFA is a variable reduction technique which would produce a modified data set. The Harman's single-factor test was conducted to detect the presence of CMV (Podsakoff et al., 2003). In this procedure, an un-rotated factor analysis was performed on all variables studied. The results of the un-rotated factor analysis so that more than one factor was produced. The largest factor explained only 16.94% of the total variance, while the other factors explained less than 10% of the variance, indicating that there was no single or general factor present. This suggests the absence of a single or general factor; therefore CMV

has no significant effect in the present context (Section 3.13.3.1). Based on the assumption of Harman's single-factor test discussed earlier (Section 3.13.3.1).

Subsequently, the individual items of every construct are separately factor analyzed to find out the constructs' uni-dimensionality. Table 4.32 shows that the Bartlett sphericity test values are large and significant for all the factor analyses, with values going from 370.082 (EWOM) as well as 1364.408 (product innovation). Finally, during the Exploratory Factor Analysis (EFA), KMO is used to ensure that the sample is adequate for factors analysis. Likewise, all the Kaiser-Meyer-Olkin (KMO) measurements of sampling adequacy of each are higher compared to the lowest cut-off point of 0.50. Thus, the correlation matrix' factorability for this research is assumed.

Table 4.30: EFA Results for All the Research Constructs

Construct	Items	Factor Loadings	Kaiser-Meyer-Olkin (KMO)	Construct Bartlett's Test of Sphericity	Eigen values	Total Variance Explained
Customer Motivation	M1	0.743	0.829	659.986***	3.392	50.958
	M2	0.625				
	M3	0.789				
	M4	0.759				
	M5	0.651				
	M6	0.524				
	M7	0.699				
	M8	0.661				
	M9	0.538				
	M10	0.659				
	M11	0.720				
Customer Collaboration	C1	0.676	0.763	438.023***	1.091	54.060
	C2	0.508				
	C3	0.601				
	C4	0.606				
	C5	0.723				
	C6	0.670				
	C7	0.633				

E-WOM	W2	0.603	0.776	370.082***	2.582	36.880
	W3	0.595				
	W4	0.575				
	W5	0.708				
	W6	0.635				
	W7	0.674				
	Information Sharing	S1	0.895	0.810	817.263***	1.019
S2		0.664				
S3		0.769				
S4		0.670				
S5		0.685				
S6		0.845				
S7		0.634				
S8		0.701				
Customer Involvement	I1	0.606	0.799	504.625***	2.965	37.068
	I2	0.501				
	I3	0.645				
	I4	0.628				
	I5	0.665				
	I6	0.622				
	I7	0.576				
	I8	0.613				
Long-term Partnership	L1	0.729	0.760	843.362***	1.002	57.092
	L2	0.631				
	L3	0.706				
	L4	0.738				
	L5	0.558				
	L6	0.695				
	L7	0.511				
	L8	0.733				
Joint Problem Solving	J1	0.704	0.815	900.993***	3.409	56.817
	J2	0.756				
	J3	0.752				
	J4	0.644				
	J5	0.853				
	J6	0.796				
Technology-Based CRM	T1	0.645	0.849	1319.490***	1.058	53.319
	T2	0.435				
	T3	0.569				
	T4	0.556				
	T5	0.572				
	T6	0.584				
	T7	0.584				
	T8	0.673				
	T9	0.564				
	T10	0.590				

	T11	0.687				
	T12	0.658				
	T13	0.625				
Product Innovation	P1	0.584	0.867	1364.408***	1.118	56.192
	P2	0.667				
	P3	0.637				
	P4	0.765				
	P5	0.636				
	P6	0.847				
	P7	0.779				
	P8	0.546				
	P9	0.533				
	P10	0.642				
Business Performance	B1	0.650	0.777	1007.194***	1.045	67.029
	B2	0.749				
	B3	0.573				
	B4	0.674				
	B5	0.736				
	B6	0.723				
	B7	0.499				
	B8	0.483				
	B9	0.603				

4.6 Confirmatory Factor Analysis (CFA)

The CFA was used to identify the measurement and structural models for both the dependent and independent latent variables, to determine the convergent as well as the constructs' discriminate validity in this study. This research utilized the five fundamental steps for model assessment to test models' validity including i) model specification; ii) model identification; iii) estimation of parameters; iv) assessment of the goodness-of-fit, and v) model re-specification. As mentioned in Section 3.13.3.3, the models analyzed in this research are either over-identified or just-identified with the utilization of the ML estimation method in the assessment process. This study's measurement and structural models are assessed using model fitting via ML estimation. Multiple goodness-of-fit indices are utilized to assess the goodness of fit of the measurement and structural models. As mentioned in Section 3.13.4.3.3.2.4, the

measurements of goodness-of-fit include: i) Absolute fit indices: chi-square statistics (χ^2), normed chi-square (NC), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI) and the root mean square error of approximation (RMSEA); and ii) Incremental fit indices: Normed fit index (NFI), comparative fit index (CFI), as well as the Tucker-Lewis index (TLI). In order to enhance the general model fit, MI is utilized as a guideline to identify specification errors in the model re-specification process. To determine the validity while avoiding incorrect solutions, the model re-specifications are carried out according to the theoretical and empirical premises (Gerbing and Anderson, 1987). As defined in the last chapter, this research adhered to SEM's best practices that focus on the evaluation of the measurement model before the structural model to determine and fix the errors of misspecification (Anderson and Gerbing, 1988). The ML estimates for measuring the parameters of the measurement models of the unidimensional constructs are shown in Figures 4.12 to 4.31.

4.6.1 Customer Motivation

At this section, a confirmatory factor analysis is conducted on Customer Motivation. As examined in Section (Section 4.3.1) this construct is measured by eleven indicators: (M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, M11). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 2.914$, GFI = 0.937, AGFI = 0.906, NFI = 0.845, TLI = 0.863, CFI = 0.891 and RMSEA = 0.073). The assessed specified measurement model of customer motivation is depicted in Figure 4.11. All indicators had standardized estimates.

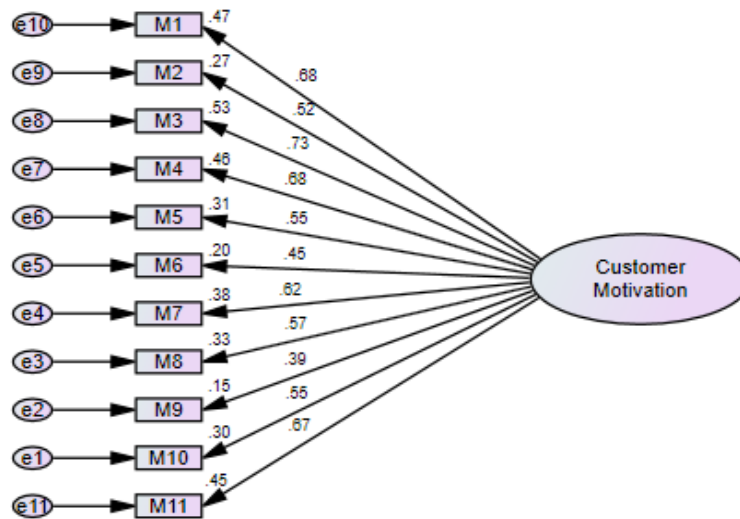


Figure 4.1: Measurement Model for Customer Motivation

However, to enhance the model's goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. The MI of Customer Motivation scale shows that one item (M9) was removed and two errors covariance paths are included among items (M1) to (M2) and items (M8) to (M11) respectively. Based on the theoretical perspective, items (M1 and M2) are closely linked, (learning benefits leads to customer motivations). On the other hand, both items (M8 and M11) customers' motivation to make feedback for contribution. Thus, suitable error covariance paths are added between items (M1) and (M2), between item (M8) and item (M11) in the measurement model. As such, by adding the covariance path between these items, the chosen goodness-of-fit indices for the measurement model is improved greatly.

Besides this, the revised customer motivation model (Figure 4.12) is tested. Table 4.32 shows the goodness-of-fit indices of the revised customer motivation construct have a better fit with the data in comparison to the past model. In particular, the NC value has reduced from 2.914 to 2.530, and the GFI has increased from 0.937 to

0.954. The AGFI also has increased from 0.906 to 0.924. The RMSEA has decreased from 0.073 to 0.66. Also, the incremental fit indices have increased: NFI from 0.845 to 0.888; CFI from 0.891 to 0.928 and TLI from 0.863 to 0.902. Table 4.32 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.12) shows the resulting revised measurement model for customer motivation.

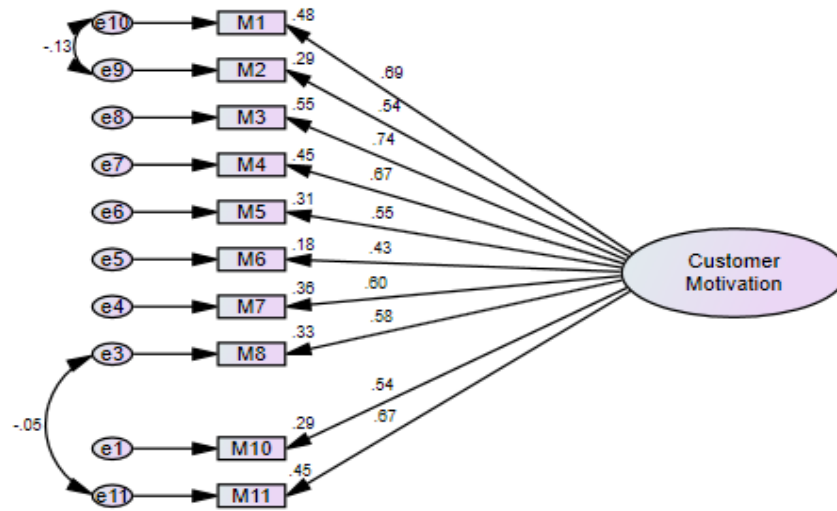


Figure 4.2: Revised Measurement Model for Customer Motivation Construct

Table 4.31: Goodness-of-Fit Indices for Revised Customer Motivation construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	83.486
NC	≤ 5	2.530
GFI	≥ 0.80	0.954
AGFI	≥ 0.80	0.924
RMSEA	≤ 0.08	0.66
NFI	≥ 0.80	0.888
CFI	≥ 0.90	0.928
TLI	≥ 0.90	0.902

4.6.2 Customer Collaboration

This model contains the unobserved variables of Customer Collaboration operationalized into seven indicators namely C1, C2, C3, C4, C5, C6, and C7. The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 4.737$, GFI = 0.952, AGFI= 0.903, NFI= 0.850, TLI = 0.814, CFI = 0.876 and RMSEA = 0.102). The assessed measurement model of customer motivation is depicted in (Figure 4.13). All indicators had standardized estimates.

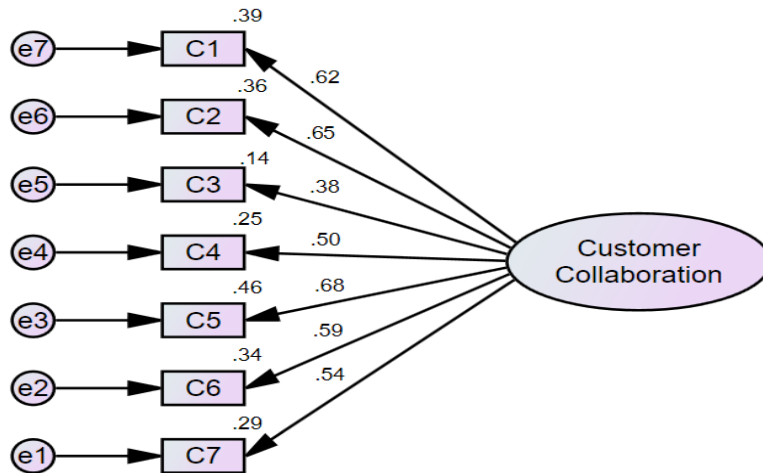


Figure 4.3: Measurement Model for Customer Collaboration

Nevertheless, to enhance the model's goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. The MI of Customer Collaboration scale shows that one item (C3) has been removed and one error covariance paths are included between items C6 and C7). Based on the theoretical perspective, items C6 and C7 are closely linked (significance of customer collaborations using social media). Thus, suitable error covariance paths are added between items C6 and C7 in the measurement

model. As such, by adding the covariance path between these items, the chosen goodness-of-fit indices for the measurement model are improved greatly.

Table 4.33 shows the goodness-of-fit indices of the revised customer collaboration construct has a better fit with the data in comparison to the past model. In particular, the NC value has reduced to 2.095 from 4.737, and the GFI has gone up to 0.985 from 0.952. The AGFI also decrease to 0.960 from 0.903. The RMSEA reduced to 0.55 from 0.102. In addition, the incremental fit indices also rose: NFI to 0.955 from 0.850; CFI increased to 0.975 from 0.876 and TLI increased from 0.814 to 0.954. Table 4.33 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.14) shows the resulting revised measurement model for customer collaboration.

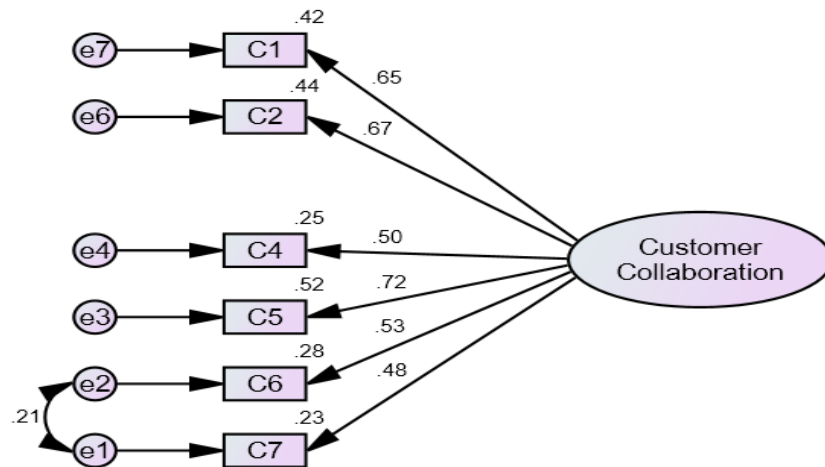


Figure 4.4: Revised Measurement Model for customer Collaboration Construct

Table 4.32: Goodness-of-Fit Indices for Revised Customer Collaboration Construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	16.758
NC	≤ 5	2.095
GFI	≥ 0.80	0.985
AGFI	≥ 0.80	0.960
RMSEA	≤ 0.08	0.055
NFI	≥ 0.80	0.955
CFI	≥ 0.90	0.975
TLI	≥ 0.90	0.954

4.6.3 EWOM

In this section, a CFA is conducted on EWOM. E-WOM was examined by seven indicators, (W2, W3, W4, W5, W6, and W7). The results are shown in (Figure 4.15). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 3.457$, GFI = 0.960, AGFI= 0.919, NFI= 0.894, TLI = 0.882, CFI = 0.921 and RMSEA = 0.083). The assessed measurement model of EWOM is depicted in (Figure 4.16). All indicators had standardized estimates.

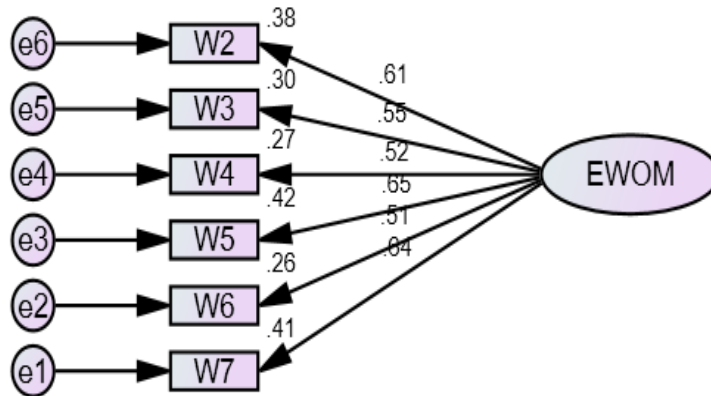


Figure 4.5: Measurement Model for Electronic Word of Mouth

Nevertheless, to enhance the model's goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. Assessment of the EFA assessment results contributed to the elimination of one case (W1), and two error covariance paths are included between item (W2) and (W6), between item (W2) and item (W7) respectively. Both links are considered to be conceptually meaningful given that the corresponding items, W1, W2, and W7 for the correlated error terms are focused on utilizing consumer feedback, opinions via social media and E-WOM. As such, by adding the covariance path between these items, the chosen goodness-of-fit indices for the measurement model are improved greatly.

Table 4.34 shows the goodness-of-fit indices of the revised EWOM construct has a better fit with the data in comparison to the past model. Specifically, the NC value has reduced from 3.457 to 1.68, and the GFI has increased from 0.960 to 0.989. The AGFI also has increased from 0.919 to 0.967. The RMSEA has decreased from 0.083 to 0.045. Also, the incremental fit indices have increased: NFI from 0.894 to 0.973; CFI from 0.921 to 0.989 and TLI from 0.882 to 0.975. Table 4.34 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.16) shows the resulting revised measurement model for customer motivation.

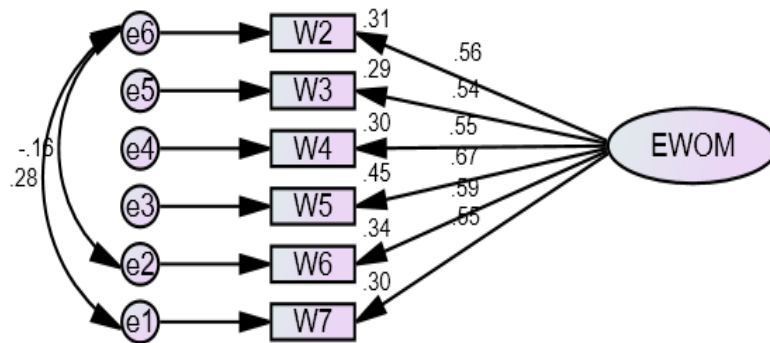


Figure 4.6: Revised Measurement Model for Electronic Word of Mouth Construct

Table 4.33: Goodness-of-Fit Indices for Revised Electronic Word of Mouth Construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	11.762
NC	≤ 5	1.680
GFI	≥ 0.80	0.989
AGFI	≥ 0.80	0.967
RMSEA	≤ 0.08	0.045
NFI	≥ 0.80	0.973
CFI	≥ 0.90	0.989
TLI	≥ 0.90	0.975

4.6.4 Information Sharing

The construct Information sharing was measured with ten indicators, (S1, S2, S3, S4, S5, S6, S7, and S8). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 2.855$, GFI = 0.948, AGFI = 0.918, NFI = 0.847, TLI = 0.863, CFI = 0.894 and RMSEA = 0.072). The assessed measurement model of customer motivation is depicted in (Figure 4.17). All indicators had standardized estimates.

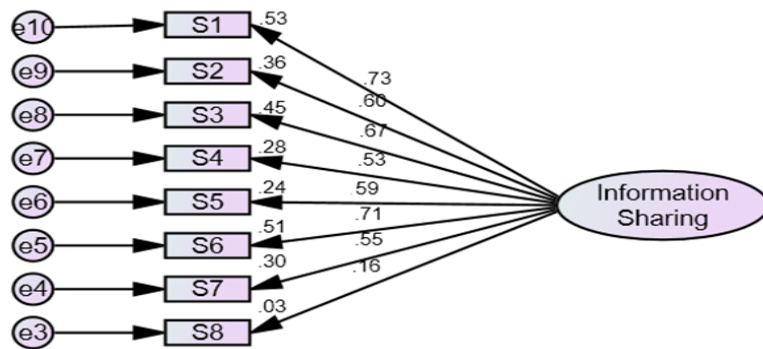


Figure 4.7: Measurement Model for Information Sharing

Nevertheless, to enhance the model’s goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. The MI of Information sharing scale shows that one item (S8) has been removed as shown in (Figure 4.16), they had the lowest standardized factor loading. Also, The MI of Information sharing scale indicates that an additional error covariance path to be included in items (S6) and (S7). Based on the theoretical perspective, both items (S6 and S7) are closely linked, indicating the relation between customer and organization through trust and satisfaction. As such, by adding the covariance path between items (S6) and item (S7 the chosen goodness-of-fit indices for the measurement model are improved greatly.

Table 4.35 shows the goodness-of-fit indices of the revised customer Information sharing construct has a better fit with the data in comparison to the past model. In particular, the NC value has reduced from 2.855 to 1.373. The GFI has increased from 0.948 to 0.986, while the AGFI has increased from 0.918to 0.970. The RMSEA has decreased from 0.072 to 0.032, a value of less than 0.08, indicating a reasonable error of approximation (Browne and Cudeck, 1993). The NFI has increased from 0.847 to 0.967, the CFI has increased from 0.863 to 0.991, and the TLI has increased from 0.898 to 0.986. Table 4.35 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.18) shows the resulting revised measurement model for Information Sharing.

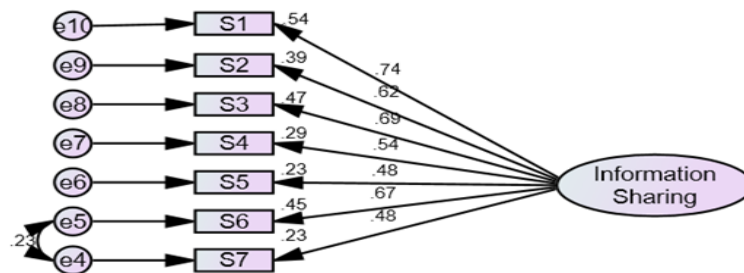


Figure 4.8: Revised Measurement Model for Information Sharing Construct

Table 4.34: Goodness-of-Fit Indices for Revised Information Sharing Construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	17.849
NC	≤ 5	1.373
GFI	≥ 0.80	0.986
AGFI	≥ 0.80	0.970
RMSEA	≤ 0.08	0.032
NFI	≥ 0.80	0.967
CFI	≥ 0.90	0.991
TLI	≥ 0.90	0.986

4.6.5 Customer Involvement

The construct customer involvement was measured with eight indicators, (I1, I2, I3, I4, I5, I6, I7 and I8). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 3.477$, GFI = 0.957, AGFI= 0.922, NFI= 0.864, TLI = 0.856, CFI = 0.897 and RMSEA = 0.083). The assessed measurement model of customer motivation is depicted in (Figure 4.19). All indicators had standardized estimates

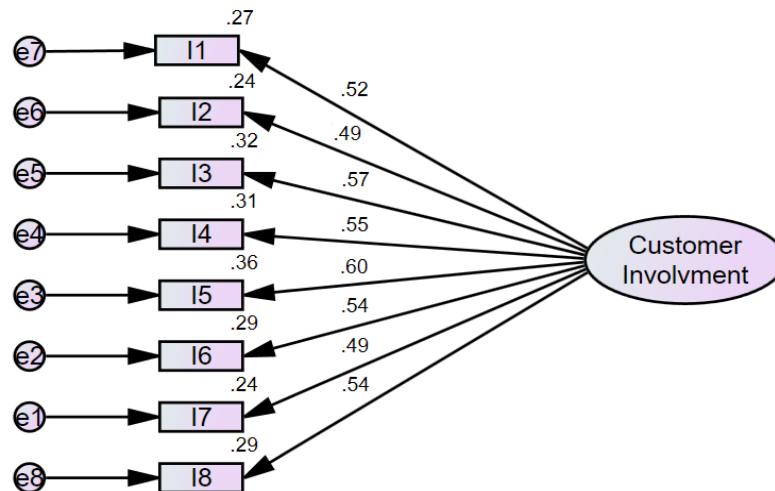


Figure 4.9: Measurement Model for Customer Involvement

The MI of customer involvement scale shows that an additional error covariance path to be included in items (I4) to (I6) and (I4) to (I7). Thus, suitable error covariance paths are added between items (I4) to (I6) and (I4) to (I7), as such, by adding the covariance path between these items, the chosen goodness-of-fit indices for the measurement model are improved greatly.

The revised customer involvement measurement model as shown in (Figure 4.20) is tested. Table 4.36 shows the goodness-of-fit indices of the revised customer involvement construct has a better fit with the data in comparison to the past model. In particular, the value of NC has decreased 3.46 to 2.302. The GFI has increased from 0.957 to 0.973, while the AGFI has increased from 0.922 to 0.945. The RMSEA has decreased from 0.083 to 0.060, a value of less than 0.08, indicating a reasonable error of approximation (Browne and Cudeck, 1993). The NFI has increased from 0.864 to 0.919, the CFI has increased from 0.897 to 0.951, and the TLI has increased from 0.856 to 0.924. Table 4.36 summarizes the best goodness-of-fit indices for the model as generated, and (Fig. 4.20) shows the resulting revised measurement model for customer involvement.

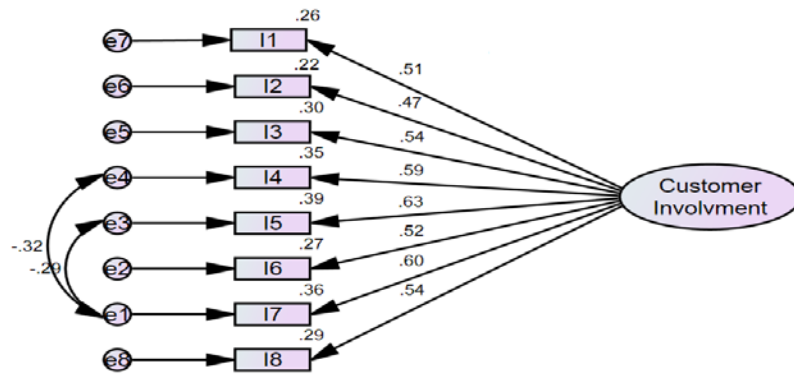


Figure 4.10: Revised Measurement Model for Customer Involvement Construct

Table 4.35: Goodness-of-Fit Indices for Revised Customer Involvement

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	41.430
NC	≤ 5	2.302
GFI	≥ 0.80	0.937
AGFI	≥ 0.80	0.945
RMSEA	≤ 0.08	0.060
NFI	≥ 0.80	0.919
CFI	≥ 0.90	0.951
TLI	≥ 0.90	0.924

4.6.6 Long-term Partnership

The construct Long term partnership was measured with eight indicators,(L1, L2, L3, L4, L5, L6, L7 and L8). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 4.212$, GFI = 0.946, AGFI= 0.903, NFI= 0.808, TLI = 0.781, CFI = 0.844and RMSEA = 0.095). The assessed specified measurement model of Long-term partnership is depicted in (Figure 4.21). All indicators had standardized estimates.

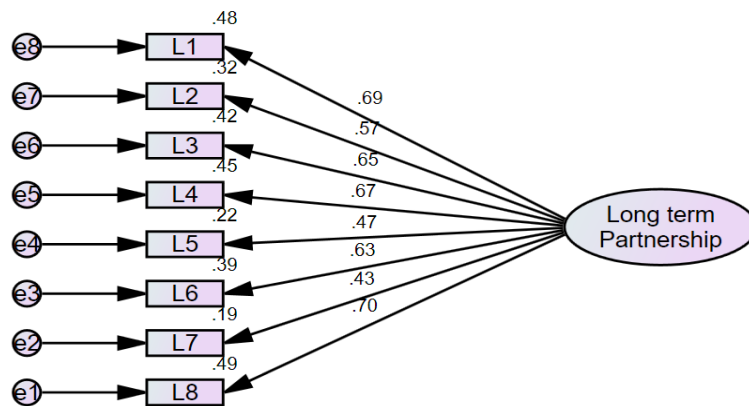


Figure 4.11: Measurement Model for Long-term Partnership

In order, to enhance the model’s goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. Assessment of the EFA assessment results contributed to the elimination of one case (L7) and two error covariance paths to be included in items (L3) to (L4) and items (L3) to (L6) respectively. Both links are considered to be conceptually meaningful given that the corresponding items, L3, L4, and L6 for the correlated organization care about long-term partnership through the mutual trust which benefits from customers. Therefore, by adding the covariance path between these items, the chosen goodness-of-fit indices for the measurement model are improved greatly.

Table 4.37 shows the goodness-of-fit indices of the revised Long term partnership construct have a better fit with the data in comparison to the past model. In particular, the NC value has reduced from 4.212 to 2.461, while the GFI has increased from 0.946 to 0.977. The AGFI also has increased from 0.903 to 0.947. The RMSEA has decreased from = 0.095 to 0.064. Also, the incremental fit indices have increased: NFI from 0.808 to 0.922; CFI from 0.844 to 0.951 and TLI from 0.781 to 0.915. Table 4.37 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.22) shows the resulting revised measurement model for Long term partnership.

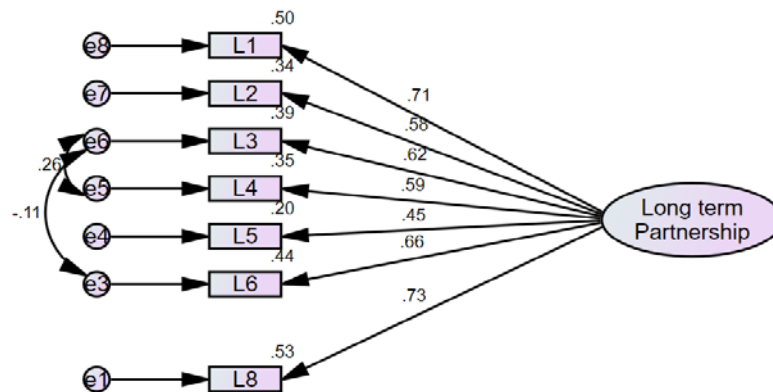


Figure 4.12: Revised Measurement Model for Long-term Partnership Construct

Table 4.36: Goodness-of-Fit Indices for Revised Long-term Partnership Construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	29.528
NC	≤ 5	2.461
GFI	≥ 0.80	0.977
AGFI	≥ 0.80	0.947
RMSEA	≤ 0.08	0.064
NFI	≥ 0.80	0.922
CFI	≥ 0.90	0.951
TLI	≥ 0.90	0.915

4.6.7 Joint Problem Solving

At this section, a confirmatory factor analysis is conducted on Joint problem-solving. The construct Joint problem solving was measured with six indicators,(J1, J2, J3, J4, J5, and J6). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 2.029$, GFI = 0.984, AGFI= 0.962, NFI= 0.956, TLI = 0.962, CFI = 0.977and RMSEA = 0.054). The assessed specified measurement model of Joint problem solving is depicted in (Figure 4.23). All indicators had standardized estimates.

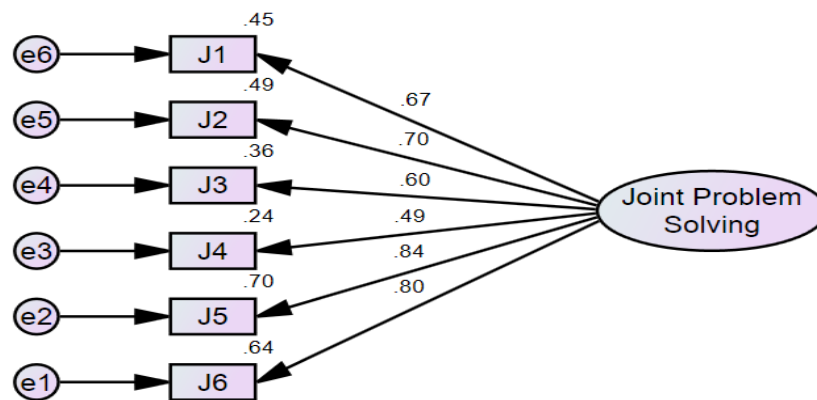


Figure 4.13: Measurement Model for Joint Problem Solving

Nevertheless, to enhance the model's goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. The MI of one error covariance paths to be included in items (J4) and item (J5). Both items (J4 and J5) are closely linked, joint problem solving, help the organization to enhance product quality and technical ability and improve the learning. Thus, suitable error covariance paths are added between these items, the selected goodness-of-fit indices for the measurement model were greatly improved.

Table 4.38 shows the goodness-of-fit indices of the revised Joint problem-solving construct has a better fit with the data in comparison to the past model. In particular, the NC value has reduced from 2.029 to 1.513, while the GFI has increased from 0.984 to 0.989. The AGFI also has increased from 0.962 to 0.971. The RMSEA has decreased from 0.054 to 0.038. Also, the incremental fit indices have increased: NFI from 0.956 to 0.971; CFI from 0.977 to 0.990 and TLI from 0.962 to 0.981. Table 4.38 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.24) shows the resulting revised measurement model for Joint problem-solving.

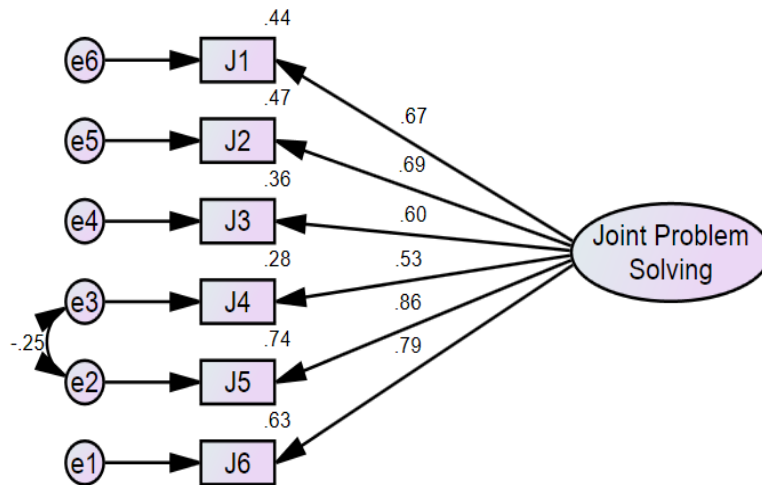


Figure 4.14: Revised Measurement Model for Joint Problem Solving Construct

Table 4.37: Goodness-of-Fit Indices for Revised Joint Problem Solving Construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	12.102
NC	≤ 5	1.513
GFI	≥ 0.80	0.989
AGFI	≥ 0.80	0.971
RMSEA	≤ 0.08	0.038
NFI	≥ 0.80	0.971
CFI	≥ 0.90	0.990
TLI	≥ 0.90	0.981

4.6.8 Technology Based CRM

The construct technology-based CRM was measured with thirteen indicators,(T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, and T13). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 4.758$, GFI = 0.887, AGFI= 0.842, NFI= 0.769, TLI = 0.768, CFI = 0.806 and RMSEA = 0.103). The assessed specified measurement model of technology-based CRM is depicted in (Figure 4.25). All indicators had standardized estimates.

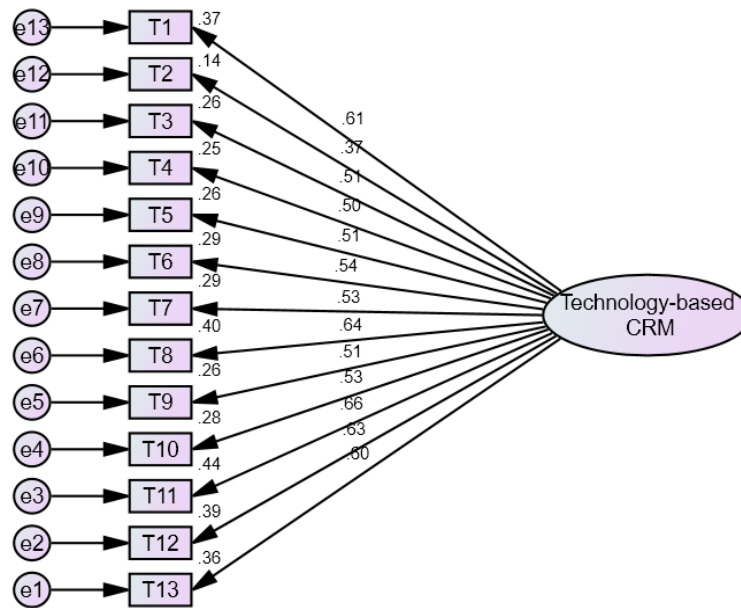


Figure 4.15: Measurement Model for Technology-Based CRM

In order to enhance the model’s goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. Assessment of the EFA assessment results contributed to the elimination of one case (T2) was removed as shown in Figure 4.26; it has the lowest standardized factor loading and four error covariance paths to be included between items (T4) to (T5), items (T1) to (T12), items (T8) to (T13) and items (T11) to (T13) respectively. All links are considered to be conceptually meaningful given that the corresponding items, T4 to T5 (uses data warehousing and data mining to save customers' information), T1 to T12 (organization uses a call center or computer telephone integration to deal with demands of customer, complaints, and suggestions as an important component of CRM systems) and T8, T12 and T13 (the importance of information in CRM systems in organization). As such, by adding the covariance path between these items, the chosen goodness-of-fit indices for the measurement model is improved greatly.

Table 4.39 shows the goodness-of-fit indices of the revised technology-based CRM construct has a better fit with the data in comparison to the past model. In particular, the NC value has reduced from 4.758 to 2.054, while the GFI has increased from 0.887 to 0.954. The AGFI also has increased from 0.842 to 0.929. The RMSEA has decreased from = 0.103 to 0.054. Also the incremental fit indices have increased: NFI from 0.769 to .0.915; CFI from 0.806 to 0.954 and TLI from 0.768 to 0.939. Table 4.39 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.26) shows the resulting revised measurement model for technology-based CRM.

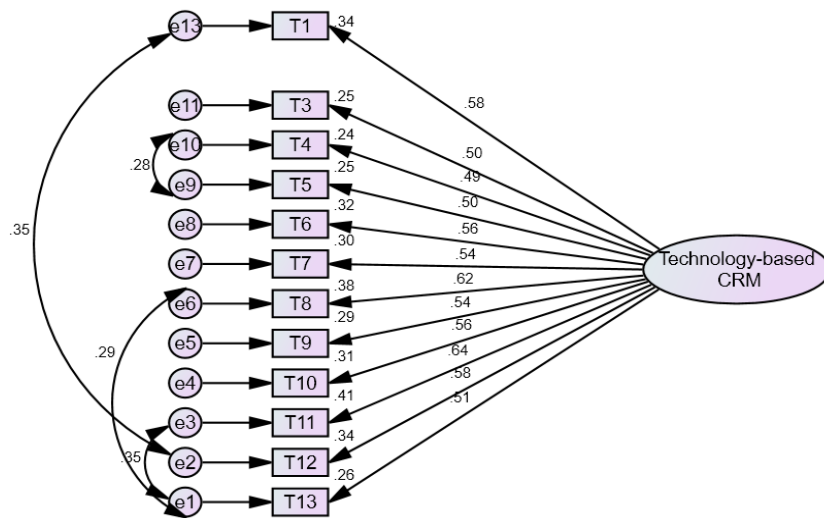


Figure 4.16: Revised Measurement Model for Technology Based CRM Construct

Table 4.38: Goodness-of-Fit Indices for Revised Technology Based CRM Construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	102.707
NC	≤ 5	2.054
GFI	≥ 0.80	0.954
AGFI	≥ 0.80	0.929
RMSEA	≤ 0.08	0.054
NFI	≥ 0.80	0.915
CFI	≥ 0.90	0.954
TLI	≥ 0.90	0.939

4.6.9 Product Innovation

In this section, a confirmatory factor analysis is conducted on product innovation. This construct is measured by ten indicators: (P1, P2, P3, P4, P5, P6, P7, P8, P9 and P10). The results are shown in (Figure 4.27). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 4.494$, GFI = 0.917, AGFI= 0.870, NFI= 0.848, TLI = 0.841, CFI = 0.876 and RMSEA = 0.099). All indicators had standardized estimates.

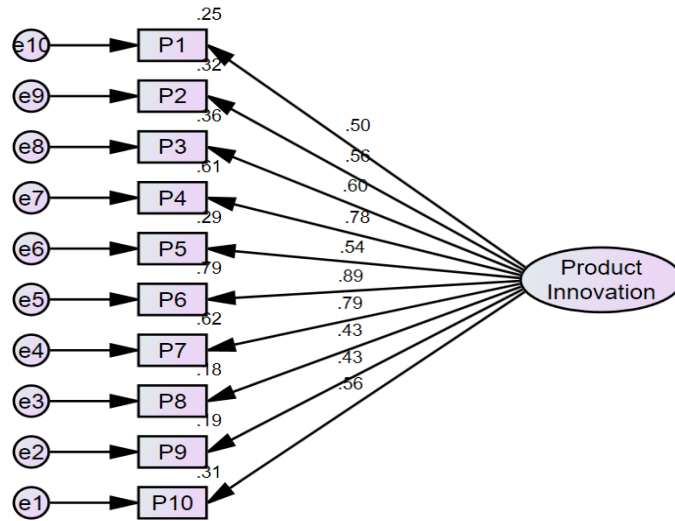


Figure 4.17: Measurement Model for Product Innovation

However, to enhance the model's goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. The MI of product innovation scale indicates that two items (P8, P9) were removed and three error covariance paths are included among items (P1) to (P2), items (P2) to (P4) and items (P5) to (P6) respectively. The links are considered to be conceptually meaningful given that the corresponding items the items (P1, P2, p4) are closely related, (launches new products to the market). On the other hand, both items (P5 and P6) collaboration with customers

and understanding their needs in product innovation. Therefore, relevant error covariance paths are added between items (P1) to (P2), items (P2) to (P4) and items (P5) to (P6) in the measurement model. As such, by adding the covariance path between these items, the chosen goodness-of-fit indices for the measurement model is improved greatly.

Table 4.40 shows the goodness-of-fit indices of the revised product innovation construct have a better fit with the data in comparison to the past model. In particular, the NC value has reduced from 4.494 to 1.868, while the GFI has increased from 0.917 to 0.974. The AGFI also has increased from 0.870 to 0.952. The RMSEA has decreased from 0.099 to 0.049. Also, the incremental fit indices have increased: NFI from 0.848 to 0.950; CFI from 0.876 to 0.976 and TLI from 0.841 to 0.963. Table 4.40 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.28) shows the resulting revised measurement model for product innovation.

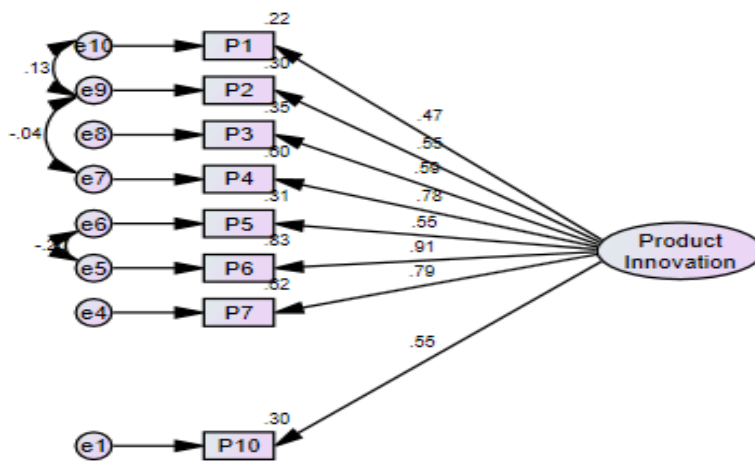


Figure 4.18: Revised Measurement Model for Product Innovation Construct

Table 4.39: Goodness-of-Fit Indices for Revised Product Innovation Construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	44.838
NC	≤ 5	1.868
GFI	≥ 0.80	0.974
AGFI	≥ 0.80	0.952
RMSEA	≤ 0.08	0.049
NFI	≥ 0.80	0.950
CFI	≥ 0.90	0.976
TLI	≥ 0.90	0.963

4.6.10 Business Performance

The construct business performance was measured with nine indicators, (B1, B2, B3, B4, B5, B6, B7, B8, and B9). The goodness-of-fit indices generated from the assessment of the CFA on this model shows a poor fit ($\chi^2/df = 3.841$, GFI = 0.940, AGFI= 0.900, NFI= 0.831, TLI = 0.823, CFI = 0.867 and RMSEA = 0.089). The assessed specified measurement model of business performance is depicted in (Figure 4.29). All indicators had standardized estimates.

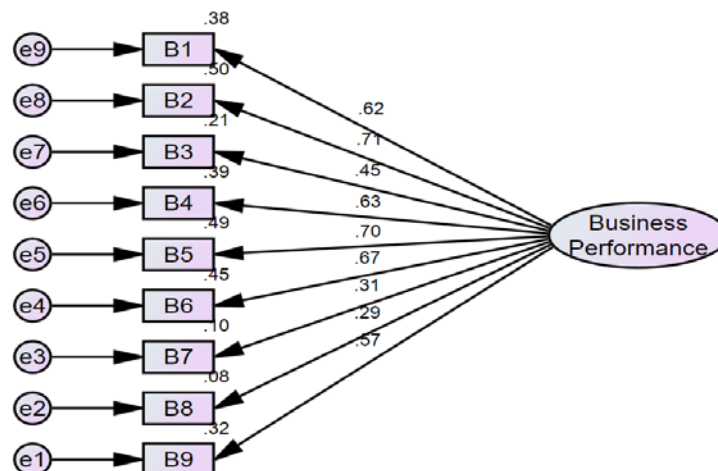


Figure 4.19: Measurement Model for Business Performance

In order to enhance the model’s goodness-of-fit indices, an investigation of the modification indices (MI) of CFA is necessary. Assessment of the EFA assessment results contributed to the elimination of two cases (B7) and (B8) were removed as shown in Figure 4.16; it has the lowest standardized factor loading and two error covariance paths to be included in items (B2) to (B4) and items (B6) to (B9) respectively. Both links are considered to be conceptually meaningful. T. As such, by adding the covariance path between these items, the chosen goodness-of-fit indices for the measurement model are improved greatly.

Table 4.41 shows the goodness-of-fit indices of the revised business performance construct has a better fit with the data in comparison to the past model. Specifically, the NC value has reduced from 3.841 to 2.286, while the GFI has increased from 0.940 to 0.979. The AGFI also has increased from 0.900 to 0.952. The RMSEA has decreased from = 0.089 to 0.060. Also, the incremental fit indices have increased: NFI from 0.831 to 0.945; CFI from 0.867 to 0.968 and TLI from 0.823 to 0.944. Table 4.41 summarizes the best goodness-of-fit indices for the model as generated. (Fig. 4.30) shows the resulting revised measurement model for business performance.

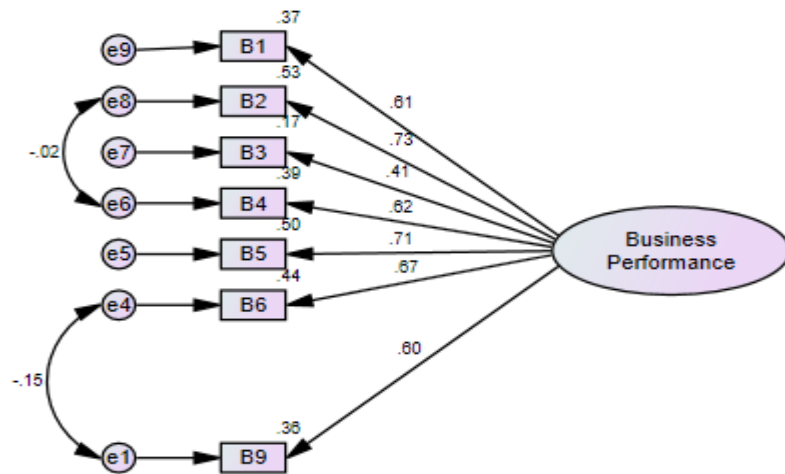


Figure 4.20: Revised Measurement Model for Business Performance Construct

Table 4.40: Goodness-of-Fit Indices for Revised Business Performance Construct

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	27.430
NC	≤ 5	2.286
GFI	≥ 0.80	0.979
AGFI	≥ 0.80	0.952
RMSEA	≤ 0.08	0.060
NFI	≥ 0.80	0.945
CFI	≥ 0.90	0.968
TLI	≥ 0.90	0.915

4.7 Measurement Model

The SEM statistical technique was used to examine the relations among social media, CRM, Product innovation and Business performance as well as the mediating effect on product innovation between Social media, CRM, and business performance.

CFA was performed to assess the measure parameters of the measurement models of the uni-dimensional constructs (e.g., customer motivation, customer collaboration, EWOM, information sharing, etc) used in this study. In this section, the revised measurement models are used in developing the hypothesized models. The CFA was performed with the data collected from the final survey.

Additional investigation of the CFA's MI is carried out to enhance the model's goodness-of-fit indices. The social media and CRM measurement model is modified by adding relevant error covariance paths indicated by the MI. The revised social media and CRM measurement model is tested (Figure 4.32). The standardized estimates for the regression weights, co-variances and variances are shown on the (Figure 4.47), while the corresponding goodness-of-fit indices for the model are summarized in (Table 4.43). According to Bagozzi and Yi (2012) attempts at improving the model fit should stem

from careful consideration of the magnitude of the factor loadings, standardized residuals and modification indices with appropriate justifications.

With the exception of M6 (0.43), I2 (0.47) and L5 (0.45) (Regression Weight > 0.05) the standardized factor loadings for all the other items on their associated latent variables are greater than 0.5 as stated by Hair et al. (2006). Accordingly, items M6, I2, and L5 were deleted and the model reassessed. In order to re-specify the model, it is recommended that these indicators' covariance error paths could be inter-related, but it should be justified theoretically. If not, the revised model would be unsubstantiated and become a product of chance (Anderson and Gerbing, 1988; Bagozzi and Yi, 2012).

Table 4.32 shows the goodness-of-fit indices of the revised social media and CRM measurement model. In particular, the χ^2 value has reduced from 1617.932 to 1299.579. NC has decreased from 1.689 to 1.335. The GFI has increased from 0.893 to 0.922, while the AGFI has increased from 0.884 to 0.913. The RMSEA has decreased from 0.044 to 0.032, a value of less than 0.05 indicating a close approximate fit (Browne and Cudeck, 1993). The incremental fit indices show that the NFI has increased from 0.897 to 0.918, the CFI has increased from 0.935 to 0.951, and the TLI has increased from 0.903 to 0.939. For these reasons, the revised social media and CRM measurement model is adopted for further analysis.

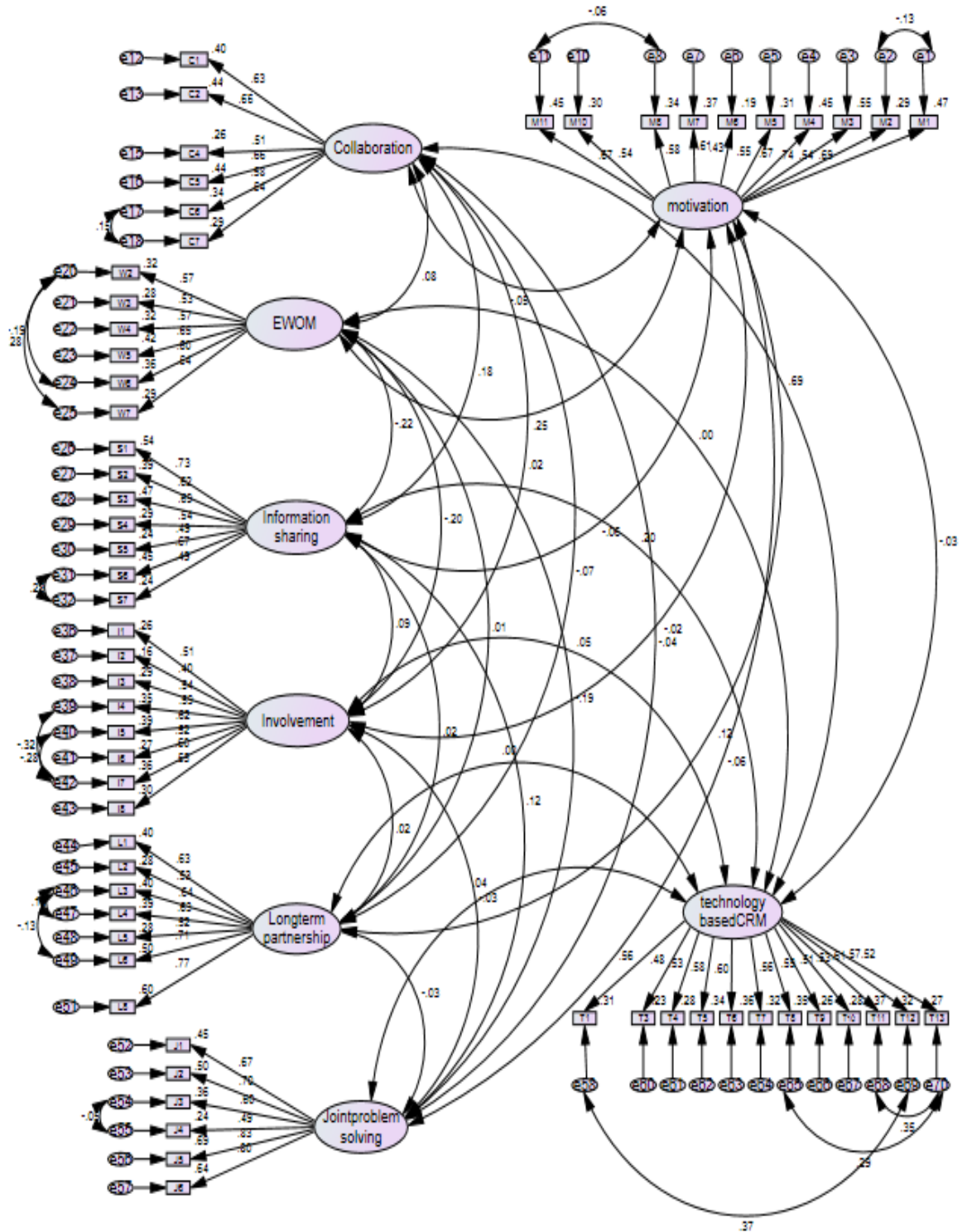


Figure 4.21: Measurement Model of Social Media and CRM Constructs

Table 4.41: Goodness-of-Fit Indices for Social Media and CRM Measurement Model

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	1617.932
NC	≤ 5	1.689
GFI	≥ 0.80	0.893
AGFI	≥ 0.80	0.884
RMSEA	≤ 0.08	0.044
NFI	≥ 0.80	0.897
CFI	≥ 0.90	0.935
TLI	≥ 0.90	0.903

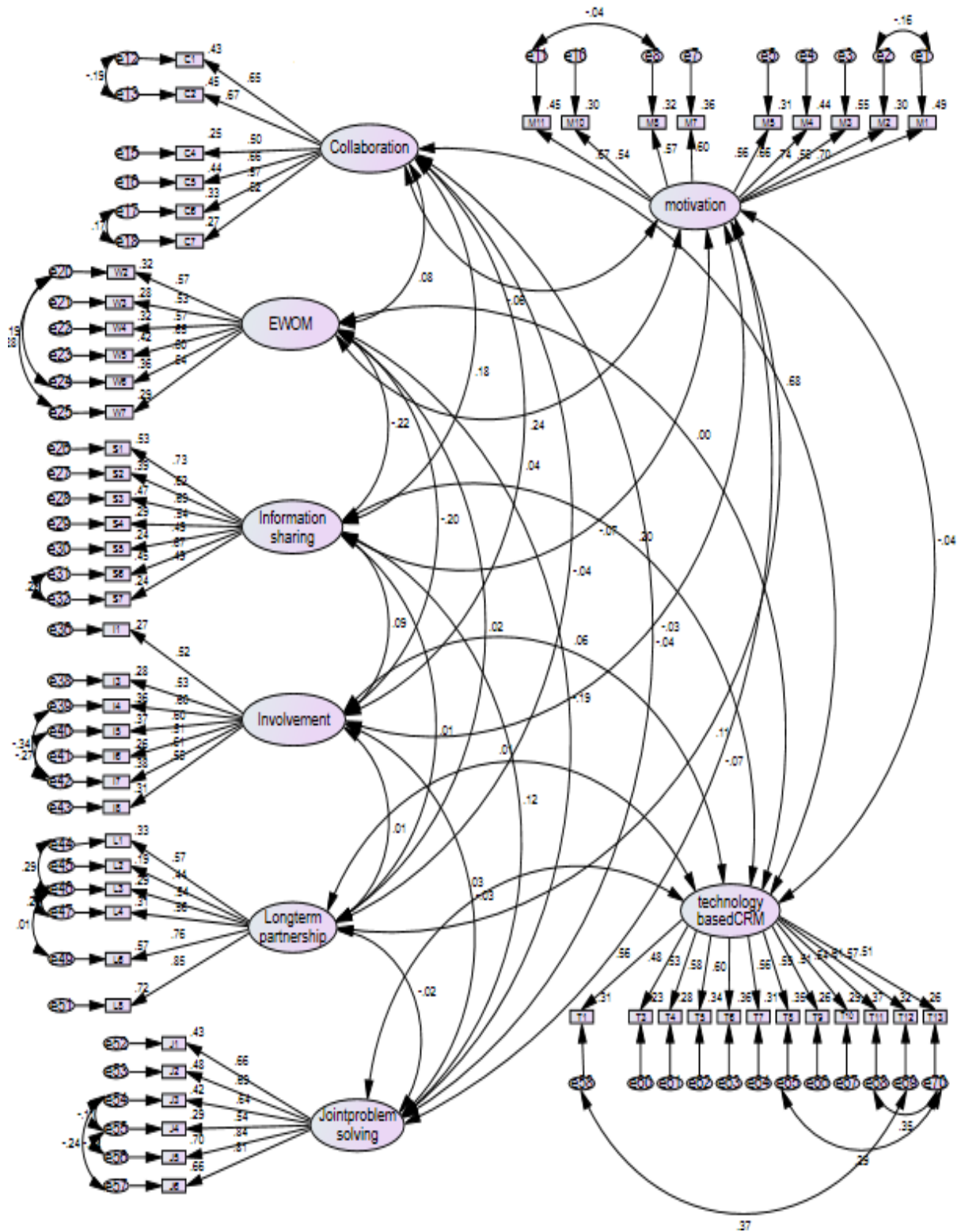


Figure 4.22: Revised Measurement Model of Social Media and CRM Constructs

Table 4.42: Goodness-of-Fit Indices for Revised Social Media and CRM Measurement Model

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	1299.579
NC	≤ 5	1.335
GFI	≥ 0.80	0.922
AGFI	≥ 0.80	0.913
RMSEA	≤ 0.08	0.032
NFI	≥ 0.80	0.918
CFI	≥ 0.90	0.951
TLI	≥ 0.90	0.939

The structural model of product innovation and business performance in (Figure 4.33) was constructed from the final measurement model of product innovation from (Figure 4.29) and the final measurement model of business performance from (Figure 4.30). With the exception of B3 (0.41), (Regression Weight > 0.05) accordingly, items B3, was deleted and the model reassessed. Table 4.25 showed the goodness-of-fit indices of this structural model.

The goodness-of-fit indices of the structural model of social media and CRM Measurement are presented. An examination of the MI of CFA is conducted to enhance the goodness-of-fit indices of the structural model (Figure 4.31). The structural model of social media and CRM Measurement is modified by adding relevant error covariance paths prompted by the MI. (Figure 4.32) Shows the revised structural model of social media and CRM Measurement. The goodness-of-fit indices of the revised structural model of social media and CRM Measurement are summarized in (Table 4.44).

Specifically, the value of χ^2 has reduced from 139.584 to 123.282. NC has decreased from 1.962 to 1.904. The GFI has increased from 0.918 to 0.949, while the

AGFI has increased from 0.909 to 0.923. The RMSEA has decreased from 0.043 to 0.037, a value of less than 0.05 indicating a close approximate fit (Browne and Cudeck, 1993). The incremental fit indices show that the NFI has increased from 0.849 to 0.891, the CFI has increased from 0.917 to 0.944, and the TLI has increased from 0.906 to 0.927. In these instances, the revised structural model of product innovation and business performance is used for further analysis.

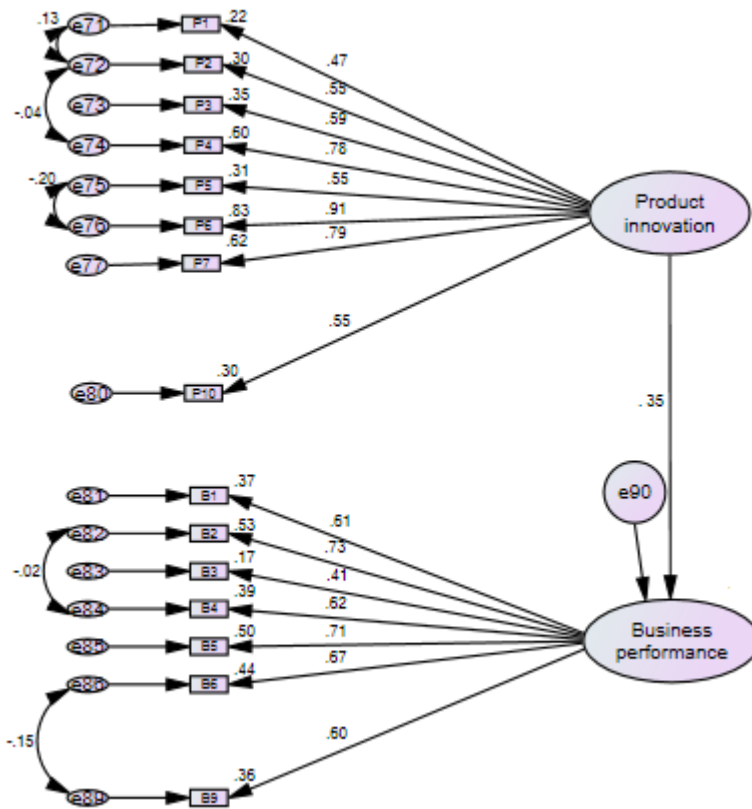


Figure 4.23: Structural Model of Product Innovation and Business Performance

Table 4.43: Goodness-of-Fit Indices for Structural Model of Product Innovation and Business Performance

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	139.584
NC	≤ 5	1.962
GFI	≥ 0.80	0.918
AGFI	≥ 0.80	0.909
RMSEA	≤ 0.08	0.043
NFI	≥ 0.80	0.849
CFI	≥ 0.90	0.917
TLI	≥ 0.90	0.906

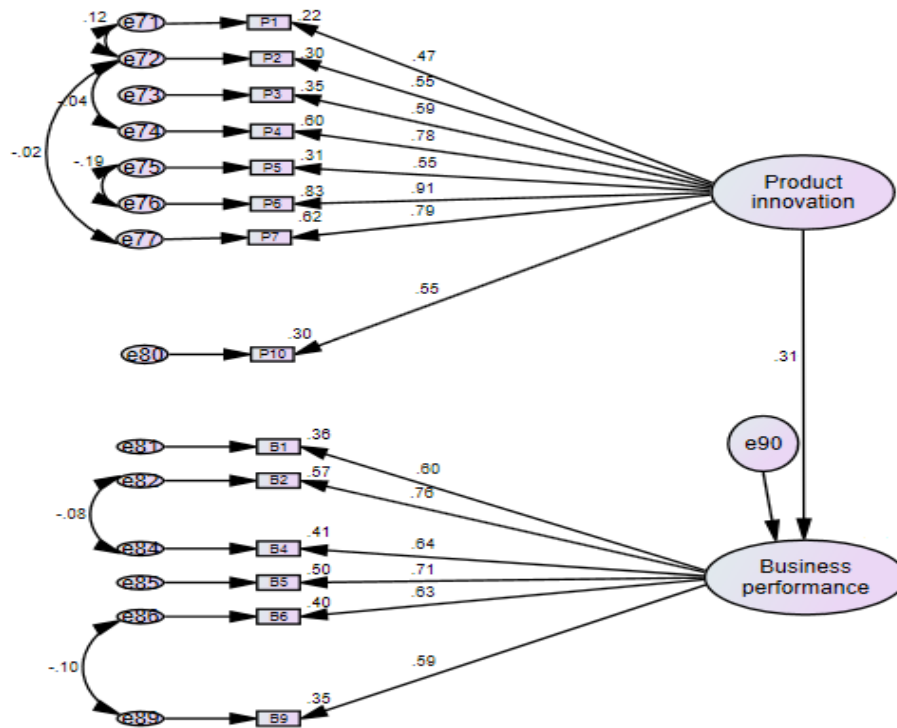


Figure 4.24: Revised Structural Model of Product Innovation and Business Performance

Table 4.44: Goodness-of-Fit Indices for Revised Structural Model of Product Innovation and Business Performance

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	123.282
NC	≤ 5	1.904
GFI	≥ 0.80	0.949
AGFI	≥ 0.80	0.923
RMSEA	≤ 0.08	0.037
NFI	≥ 0.80	0.891
CFI	≥ 0.90	0.944
TLI	≥ 0.90	0.927

The goodness-of-fit indices in (Table 4.46) were all meeting the specified requirements, and hence the structural model of product innovation and business performance as shown in (Fig. 4.34) was accepted. It is ready for the next stage of statistical testing.

4.8 Reliability and Validity for SEM

In research, the concepts of reliability and validity are critical because they are utilized to improve the precision of the research work's evaluation (Tavakol and Dennick, 2011); different types of research carry different definitions of these concepts such as qualitative and quantitative research (Creswell, 2014). Therefore, reliability and validity are instrumental in quantitative research. On the other hand, for qualitative research, academicians have tried to offer processes and principles that are similar to the concepts of validity and reliability found in quantitative research (Klenke, 2008). This study also ascertained all the constructs' reliability and validity as explained in detail in the following.

4.8.1 Construct Composite Reliability

According to Peter (1979), construct reliability relates to offering a consistent outcome each time by avoiding measurement errors. The requirement for multiple measurements for reliability particularly in the use of SEM has been emphasized (Hair et al., 2010). Construct reliability can be examined by evaluating the average variance extracted and composite reliability. This study used Cronbach alpha as presented in (Section 4.3), shows the value of Cronbach alpha for all the ten variables for this study. The result indicates that minimum alpha value for this study was 0.717 and the highest value was 0.857, indicating high consistency.

Based on Nunnally (1994), if the CR value is greater than 0.6, an internal consistency of the model. As indicated in (Table 4.47), all indicators obtained the good CR values from 0.764 (customer involvement) to 0.883 (joint problem solving). Therefore, the findings confirm the constructs' high reliability since they consistently explain the variances. The Average Variances Extracted (AVE) is another method of assessing each construct's reliability. An AVE of more than 0.5 is highly suggested as the criterion for a variable reliability (Fornell and Larcker, 1981). This threshold demonstrates that based on the mentioned variables, more than 50% of the variances are defined by a set of indicators. The Cronbach coefficient Alpha is used to examine the reliability of the measuring scale with more than one item. It indicates the degree of consistency of the observed variables (Carmines and Zeller, 1979). Based on the standardized estimates from revised measurement model, the composite reliabilities for all the latent variables were computed as shown in (Table4.47). According to Hair et al., (2008) the modest reliability in the range of between 0.5 to 0.6 and good reliability coefficient should be greater than 0.7.

Table 4.45: Computation of CR and AVE for Latent Variables

Latent variables (SE)	Items mate	Standardized Estimates (SE)	Squared Standardized Estimates (SE) ²	Error Term (1 -(SE)2)
Customer Motivation (M)	M1	0.701	0.491	0.509
	M2	0.550	0.303	0.698
	M3	0.744	0.554	0.446
	M4	0.663	0.440	0.560
	M5	0.555	0.308	0.692
	M7	0.600	0.360	0.640
	M8	0.568	0.323	0.677
	M10	0.543	0.295	0.705
	M11	0.668	0.446	0.554
	Total	5.592	4.519	4.481
	(Total) ²	31.270		
	CR= 0.875 AVE=0.502			
Customer Collaboration (C)	C1	0.653	0.426	0.574
	C2	0.672	0.452	0.548
	C4	0.503	0.253	0.747
	C5	0.657	0.432	0.568
	C6	0.575	0.331	0.669
	C7	0.521	0.271	0.729
	Total	3.581	3.165	2.835
	(Total) ²	12.824		
CR = 0.819 AVE = 0.527				
Electronic Word Of Mouth(W)	W2	0.569	0.324	0.676
	W3	0.526	0.277	0.723
	W4	0.568	0.323	0.677
	W5	0.651	0.424	0.576
	W6	0.600	0.360	0.640
	W7	0.540	0.292	0.708
	Total	3.454	2.998	3.002
	(Total) ²	11.930		
CR = 0.799 AVE =0.500				
Information Sharing (S)	S1	0.731	0.534	0.466
	S2	0.622	0.387	0.613
	S3	0.685	0.469	0.531
	S4	0.538	0.289	0.711
	S5	0.494	0.244	0.756
	S6	0.673	0.453	0.547
	S7	0.493	0.243	0.757
	Total	4.236	3.620	3.380

	(Total) ²	17.944		
	CR = 0.841 AVE =0.517			
Customer Involvement(I)	I1	0.519	0.269	0.731
	I3	0.531	0.282	0.718
	I4	0.601	0.361	0.639
	I5	0.605	0.366	0.634
	I6	0.511	0.261	0.739
	I7	0.614	0.377	0.623
	I8	0.554	0.307	0.693
	Total	3.935	3.224	4.776
	(Total) ²	15.484		
	CR = 0.764 AVE = 0.403			
Long-term Partnership(L)	L1	0.554	0.307	0.693
	L2	0.444	0.197	0.803
	L3	0.522	0.272	0.728
	L4	0.529	0.280	0.720
	L6	0.764	0.584	0.416
	L8	0.870	0.757	0.243
	Total	3.683	2.897	3.103
	(Total) ²	13.564		
	CR = 0.814 AVE = 0.483			
Joint problem-Solving (J)	J1	0.658	0.433	0.567
	J2	0.690	0.476	0.524
	J3	0.645	0.416	0.584
	J4	0.537	0.288	0.712
	J5	0.839	0.704	0.296
	J6	0.813	0.661	0.339
	Total	4.182	3.678	2.322
	(Total) ²	17.489		
	CR = 0.883 AVE =0.613			
Technology-based CRM(T)	T1	0.555	0.308	0.692
	T3	0.481	0.231	0.769
	T4	0.528	0.279	0.721
	T5	0.580	0.336	0.664
	T6	0.597	0.356	0.644
	T7	0.561	0.315	0.685
	T8	0.589	0.347	0.653
	T9	0.513	0.263	0.737
	T10	0.535	0.286	0.714
	T11	0.608	0.370	0.630
	T12	0.566	0.320	0.680
	T13	0.514	0.264	0.736
	Total	6.627	4.676	6.824
	(Total) ²	43.917		

	CR = 0.866 AVE =0.407			
Product Innovation(P)	P1	0.473	0.224	0.776
	P2	0.553	0.306	0.694
	P3	0.594	0.353	0.647
	P4	0.776	0.602	0.398
	P5	0.559	0.312	0.688
	P6	0.907	0.823	0.177
	P7	0.785	0.616	0.384
	P10	0.558	0.311	0.689
	Total	5.205	4.047	3.953
	(Total) ²	27.092		
	CR = 0.873 AVE =0.506			
Business Performance (B)	B1	0.607	0.368	0.632
	B2	0.739	0.546	0.454
	B4	0.611	0.373	0.627
	B5	0.705	0.497	0.503
	B6	0.667	0.445	0.555
	B9	0.593	0.352	0.648
	Total	3.922	3.081	2.819
	(Total) ²	15.382		
	CR = 0.845 AVE =0.522			

4.8.2 Assessment of Construct Validity

Construct validity helps to identify the appropriateness of measures for the factors. It ensures whether measures are suitable for assessing theories that it designs to test (Sekaran 2010). Among the main objectives of the CFA is evaluating the proposed measurement theory or the structural equation modeling's (SEM) construct validity (Hair et al., 2010). The two approaches of evaluating the measured instrument's validity are stated in the following: content and construct validity, and also There are two important parts of construct validity. These are (1) convergent validity, which examines the relationship between two or more constructs within one factor; (2) discriminant validity, which assesses the relationship between two or more factors within the same model

(Sekaran 2010). In assessing the two types of validity, this research work analyzed the face convergent, discriminant, as well as the multicollinearity validity checking. The subsequent sub-sections investigate the validity measures that were utilized.

4.8.2.1 Content Validity

As previously stated in Section 3.13.2.2.1 of Chapter 3, the survey instrument's content validity in this research is assumed using the determined measurement items from past literature, integrated with further insights offered by industry experts as well as academicians. In addition, this instrument was initially subjected to pre-screening and pilot testing. A pre-test is carried out whereby the pilot scales are evaluated by managers who have been involved in social media, CRM and product innovation and two academics with research expertise. A pilot study was subsequently carried out to determine if the survey questionnaire has to be refined. The finalized survey instrument incorporated the suggestions and comments obtained from feedback collected (section 3.7). Therefore, the content validity of the current research constructs of this research is assumed given by the academicians and industry practitioners with relevant experiences in the context of study in the assessment of the extent measurement scales.

4.8.2.2 Convergent Validity

Convergent validity is identified through the examination of the items for the same latent variable, which could measure the same construct (Hair et al., 2010). In theory, the indicators set are supposed to inter-relate with the linked latent variable, and it is defined as the factor loading. The square of the factor loading denotes the measurement of variance amount in the indicator that the latent variable can explain

(shared variance). Therefore, the average variance extracted (AVE) is entered as the average variance for all theoretically linked indicators with the stated latent variable (Table 4.47). Some methods have been proposed that reveals the convergent validity. The AVEs are taken into consideration to determine the convergent validity of the latent variables. The AVE's recommended value for convergent validity is the same as or more than 0.50 (Fornell and Larcker, 1981). In addition, the value of 0.40 is regarded as suitable for behavioral study (Duarte and Raposo, 2010) while the factor loadings accepted value is fixed at 0.40. This study's lowest AVE is stated to be 0.40 for the variable of customer involvement. This construct has essential conceptual relevance for the model based on the theoretical concept. To retain this construct, it's high CR score and the items' significant factor loadings were taken into consideration (Chin, 1998). Furthermore, the convergent validity was determined by taking into account the observed items' standardized factor loadings for the finalized model of measurement (Table 4.48). Convergent validity is assessed based on the measurement model by establishing if every indicator's estimated coefficient on its posited construct factor is important, which means more than twice its standard error (Anderson and Gerbing, 1988). Table 4.48 shows that the summary of all the standard errors' values linked to the parameter estimates is lower, in comparison to their related standardized loading factors. In particular, the former is ranged from 0.043 to 0.292, and the latter ranges from 0.475 to 1.744. In addition, all the items un-standardized estimates on the connected factors are significant at 0.001, with important value ranged from 3.917 to 24.733. Hence, the convergent validity of all the constructs is supposed. Also, based on the satisfactory outcomes, as indicate in Table 4.48, all the latent variable convergent validities are also assumed.

Table 4.46: Assessment of Convergent Validity

Latent Variables	Items	Un- standardized Estimates	Standard Errors	Critical values	
Customer Motivation (M)	M1	0.929***	0.068	13.607	
	M2	1.071***	0.043	24.733	
	M3	1.217***	0.076	15.951	
	M4	1.067***	0.062	17.306	
	M5	1.000	Nil	Nil	
	M7	0.942***	0.081	11.583	
	M8	1.178***	0.072	16.438	
	M10	0.871***	0.082	10.628	
	M11	0.763***	0.080	9.579	
	Customer Collaboration (C)	C1	1.494***	0.95	15.648
		C4	0.568***	0.60	9.449
C5		0.916***	0.67	13.733	
C6		1.000	Nil	Nil	
C7		0.955***	0.88	10.863	
E-WOM (W)	W2	1.527***	0.251	6.079	
	W3	1.744***	0.292	5.972	
	W4	0.600***	0.153	3.917	
	W5	1.367***	0.228	5.989	
	W6	1.000	Nil	Nil	
	W7	1.455***	0.248	5.869	
	Information Sharing (S)	S1	0.837***	0.094	8.906
S2		1.000	Nil	Nil	
S3		1.032***	0.064	16.218	
S4		0.746***	0.068	10.932	
S6		0.928***	0.064	14.509	
S7		0.981***	0.065	15.296	
S1		0.837***	0.094	8.906	
Customer Involvement(I)	I1	0.997***	0.059	16.835	
	I3	1.000	Nil	Nil	

	I4	1.112***	0.070	15.882
	I5	0.674***	0.061	11.084
	I6	0.807***	0.069	11.767
	I8	0.770***	0.064	12.121
Long-term Partnership(L)	L1	0.475***	0.059	8.024
	L2	0.972***	0.063	15.466
	L3	0.669***	0.058	11.537
	L4	0.483***	0.066	7.379
	L6	1.223***	0.121	10.135
	L8	1.000	Nil	Nil
Joint problem-Solving (J)	J1	0.994***	0.060	16.478
	J2	0.974***	0.073	13.285
	J3	1.000	Nil	Nil
	J4	0.809***	0.57	14.100
	J5	0.897***	0.064	13.035
	J6	0.855***	0.061	14.017
Technology-based CRM(T)	T1	0.910***	0.094	9.690
	T3	0.869***	0.148	5.869
	T4	0.959***	0.136	7.071
	T5	1.160***	0.155	7.474
	T6	1.317***	0.168	7.859
	T7	1.498***	0.180	8.319
	T8	0.670***	0.073	9.211
	T9	1.000	Nil	Nil
	T10	0.893***	0.092	9.754
	T11	0.819***	0.085	9.638
	T12	0.818***	0.174	11.087
	T13	0.661***	0.081	8.175
Product Innovation(P)	P1	1.165***	0.123	9.479
	P2	1.380***	0.139	9.896
	P3	1.493***	0.146	11.248
	P4	1.342***	0.130	10.319
	P5	1.266***	0.129	9.831

	P6	1.480***	0.151	10.351
	P7	1.590***	0.161	12.495
	P10	1.000	Nil	Nil
Business Performance (B)	B1	0.966***	0.092	10.492
	B2	0.826***	0.087	9.488
	B4	1.000	Nil	Nil
	B5	1.415***	0.110	12.827
	B6	0.994***	0.096	10.372
	B9	0.571***	0.073	7.880

4.8.2.3 Discriminant Validity

Discriminant validity is an assessment of the extent to which a set of indicators associated with a supposed latent variable discriminates from other latent variables (Hair et al., 2010). Discriminant Validity is the magnitude to which the operationalization does not correlate with other operationalization that is hypothetically not supposed to correlate with. In other words, discriminant validity expresses to the level to which factors are distinct and uncorrelated (Gaskin, 2011). Discriminant validity is assumed when the shared variance between a pair of latent variables is lesser magnitude than the average variance extracted (AVE) for each variable (Fornell and Larcker, 1981). As earlier stated, the AVE is the measure of the average amount of variance a latent variable is able to account for in its theoretically associated indicators and the square of the correlation between a pair of constructs is known as shared variance, which corresponds to the amount of variance a construct can account for in another construct (Farrell, 2009). Table 4.49 demonstrates that the latent variables display high discriminant validity levels, whereby each variable's AVE is of a higher magnitude compared to the correlation square between it and another variable.

Table 4.47: Assessment of Discriminant Validity

	M	C	W	S	I	L	J	T	P	B
M	(0.50)									
C	0.018	(0.52)								
W	0.027	0.029	(0.50)							
S	0.025	0.031	0.042	(0.51)						
I	0.019	0.023	0.033	0.032	(0.40)					
L	0.022	0.026	0.035	0.035	0.035	(0.48)				
J	0.023	0.026	0.038	0.037	0.028	0.032	(0.61)			
T	0.018	0.034	0.028	0.030	0.022	0.025	0.025	(0.41)		
P	0.014	0.017	0.023	0.026	0.018	0.020	0.022	0.016	(0.51)	
B	0.018	0.021	0.030	0.031	0.027	0.025	0.027	0.022	0.035	(0.52)

4.8.2.4 Multicollinearity

In addition to the values reported on shared variance for the latent factors, as shown in Table 4.47, the reduced correlations' exists between your pairs of variables are established. The important condition to set up the multicollinearity can be the existence of the higher level of relationship between each set of variables. Following, Tabachnick and Fidell (2012) recommend a correlation worth (1) of 0.90 or higher as sign for the existence of multicollinearity. The primary condition for creating multicollinearity can be the existence of high relationship between each set of variables. As a result, the lack of multicollinearity can be assumed here provided that the highest value of reported shared variance, which can be the square of the correlation between information sharing(S) and electronic word of mouth (W) highest value of correlation was 0.042 that

was much less than 0.90 (Discover Table 4.49). As a result, there is proof against the presence of multicollinearity in this study.

4.9 Assessment of Structural Model of Social Media, CRM, Product Innovation and Business Performance

In sections (4.6.1 to 4.6.10), the measurement models of the independent variables (social media and CRM), product innovation and the dependent variables (business performance), had been evaluated separately. The corresponding fit models had also been established. In this current section, the overall measurement model for the four measurement models of social media, CRM, product innovation and business performance would be tested, and the corresponding results of hypotheses tests and overall structural model assessments would be presented. The initial relationship model was shown in (Figure 4.35).

The goodness-of-fit in indices of the structural model are described in (Table 4.50). Additional inspection of the MI of CFA is executed to enhance the goodness-of-fit indices of the structural model. The model re-specification is performed with the addition of relevant error covariance paths indicated by the MI. The goodness-of-meet indices of the modified structural model are shown in (Table 4.51). The value of χ^2 provides decreased from 1421.645 to 1134.470. NC has reduced from 1.550 to 1.439. The GFI has increased from 0.898 to 0.917, as the AGFI has increased from 0.887 to 0.909. The RMSEA reduced from 0.047 to 0.039, a value of significantly less than 0.05 suggesting a close approximate fit (Browne and Cudeck, 1993). The incremental fit indices show that the NFI improved from 0.876 to 0.915, the CFI has increased from 0.925 to 0.959, and the TLI has increased from 0.913 to 0.937.

Given that the revised structural model of social media, CRM, product innovation and business performance has demonstrated good fit with data, it is appropriate to be used for hypotheses testing. (Table 4.52) Shows the parameter estimates, standard errors, critical ratios, and the corresponding p -value of the hypothesized structural model of social media, CRM, product innovation and business performance. A discussion of the hypotheses testing is presented in the following section (Section 4.10).

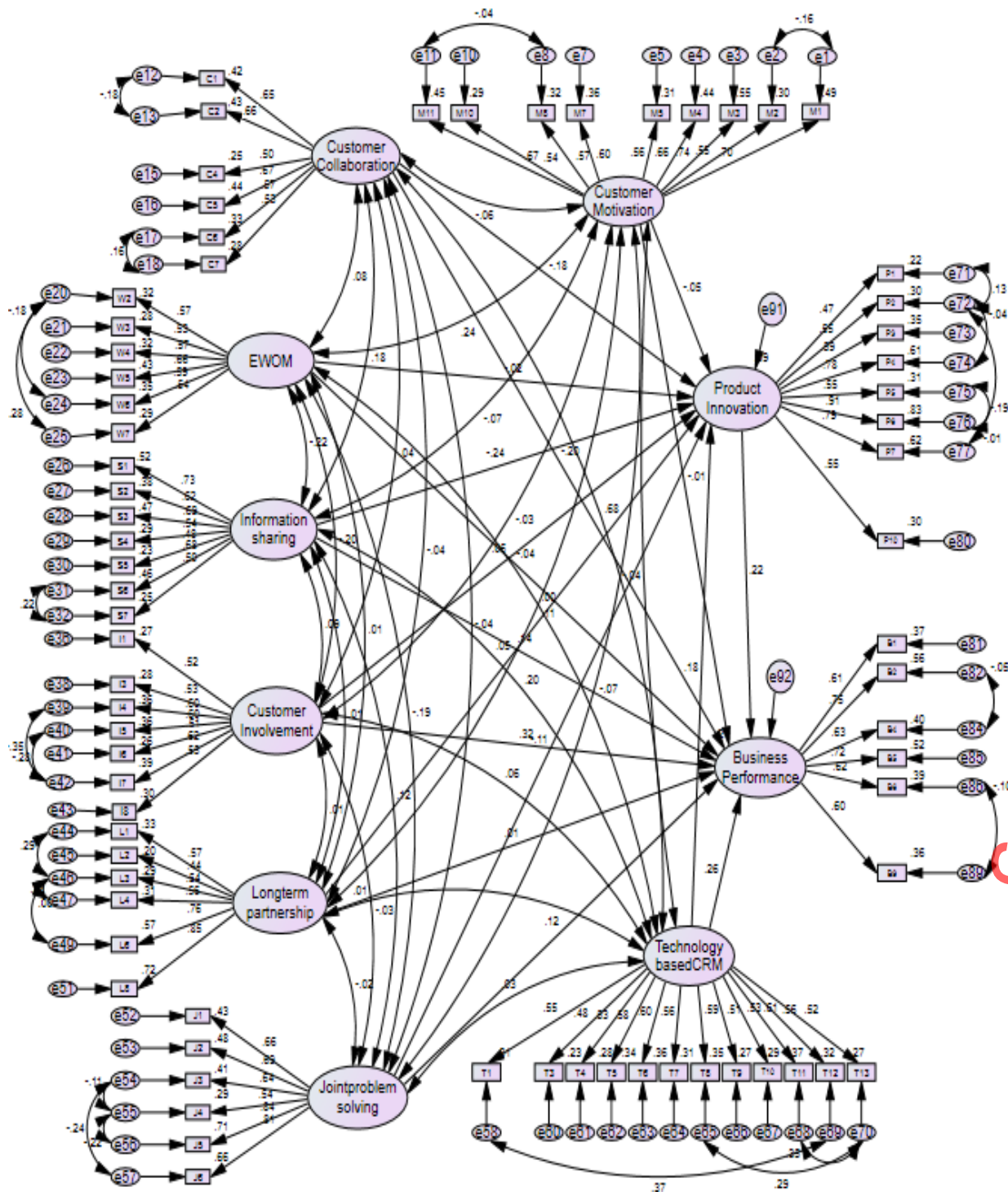


Figure 4.25: Structural Model of Social media, CRM, Product Innovation and Business Performance

Table 4.48: Goodness-of-Fit Indices for Structural Model of Social media, CRM, Product Innovation and Business Performance

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	1421.645
NC	≤ 5	1.550
GFI	≥ 0.80	0.898
AGFI	≥ 0.80	0.887
RMSEA	≤ 0.08	0.047
NFI	≥ 0.80	0.876
CFI	≥ 0.90	0.925
TLI	≥ 0.90	0.913

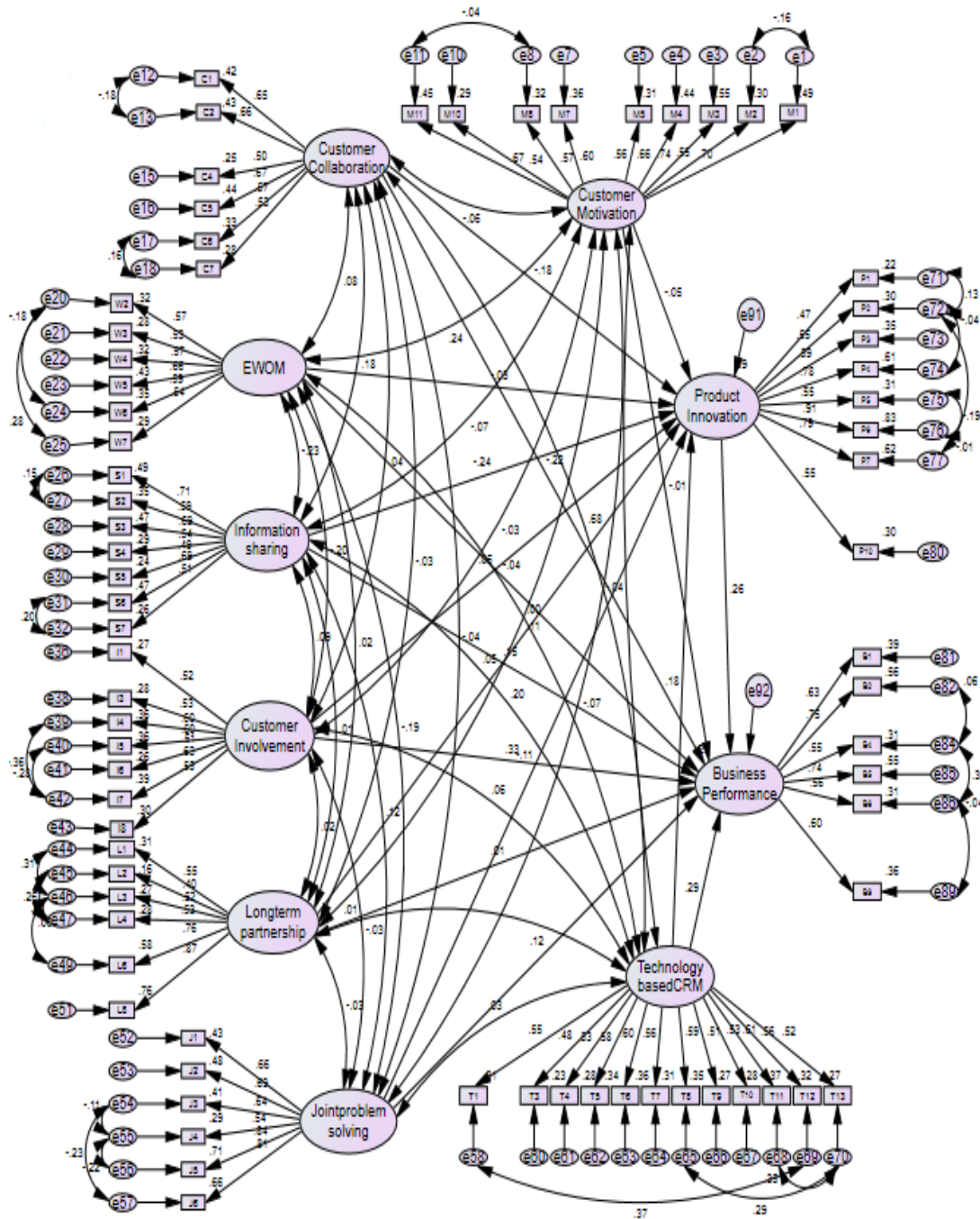


Figure 4.26: Finalized Structural Model of Social media, CRM, Product Innovation and Business Performance

Table 4.49: Goodness-of-Fit Indices for the Finalized Structural Model of Social media, CRM, Product Innovation and Business Performance

Goodness-of-fit Indices	Desirable Range	Measurement Model
χ^2	Nil	1134.470
NC	≤ 5	1.439
GFI	≥ 0.80	0.917
AGFI	≥ 0.80	0.909
RMSEA	≤ 0.08	0.039
NFI	≥ 0.80	0.915
CFI	≥ 0.90	0.959
TLI	≥ 0.90	0.937

Table 4.50: Parameter Estimates for the Finalized Structural Main Model

Paths	Unstandardized Estimates	Standard Errors	Critical Ratios	P-value
M → P	-0.046	0.059	-0.782	0.004**
C → P	-0.164	0.093	-1.761	0.043*
W → P	0.016	0.047	0.337	0.025*
S → P	-0.147	0.044	-3.341	0.038
I → P	0.047	0.048	0.969	0.171
L → P	0.032	0.041	0.772	0.035*
J → P	0.069	0.039	1.756	0.739
T → P	0.155	0.088	1.757	0.025*
P → B	0.282	0.072	3.917	0.030*
M → B	-0.011	0.070	-0.158	0.261
C → B	-0.225	0.112	-2.007	0.019*
W → B	0.032	0.056	0.570	0.252
S → B	0.105	0.051	2.055	0.001**
I → B	0.296	0.097	3.052	0.053†
L → B	0.006	0.049	0.130	0.025*
J → B	0.093	0.047	1.978	0.000***
T → B	0.294	0.110	2.687	0.014*

Note: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; M= Customer motivation; C=Customer collaboration; W=EWOM; S=Information sharing; I=Customer involvement; L=Long term partnership; J=Joint problem solving, T=Technology based CRM, P=Product innovation, B= Business performance.

4.10 Test of Mediating Effects

The product innovation's mediating effect on the relationships among social media, CRM, as well as business performance is included in the final structural model as observed in Figure 4.36. This study makes comparisons of the study outcomes from the bootstrapping technique to the path examination. Mediation is set when a past important relationship between the independent and dependent variables thrives; it said that a situation where it is constrained after introducing the third mediating variable. This provides a non-parametric re-sampling process for the observed data that generates a sampling distribution for the indirect path (Preacher and also Hayes, 2004). Thus, unlike Baron and Kenny (1986), the bootstrapping only examines the significance of the indirect impact using the confidence intervals to create more precise mediation estimation (Zhao et al., 2010). Hence, the bootstrapping method in the AMOS is chosen and utilized in assessing the mediating path.

First, to test the direct and indirect effects, bootstrapping in AMOS was used (Arbuckle, 2011; Zhao, Lynch, and Chen, 2010) because bootstrapping is regarded as a better technique for testing mediations in complex models (Mathieu and Taylor, 2006). Secondly, the two-tailed significance in the bias-corrected percentile method in AMOS for bootstrapping was set to detect the significance of mediation. Thirdly, to detect the type of mediation the algorithm developed by Zhao et al. (2010) was adopted because it offers a more accurate assessment of the types of meditational effects (Williams et al., 2009).

4.11 Results of Hypotheses Testing

As shown in (Table 4.53), the hypotheses testing results are reported based on the finalized structural model. The comprehensive results are summarized in (Table 4.53).

Table 4.51: Hypotheses Testing Results

H	Paths	Unstandardized Estimates	Std. Error	Critical Ratios	p-value	Results
H1a	M → P	-0.046	0.059	-0.782	0.004**	Supported
H1b	M → B	-0.011	0.070	-0.158	0.261	Not Supported
H1c	M → P → B	0.049	0.073	0.671	0.003**	Supported
H2a	C → P	-0.164	0.093	-1.761	0.043*	Supported
H2b	C → B	-0.225	0.112	-2.007	0.019*	Supported
H2c	C → P → B	0.030	0.068	0.454	0.015*	Supported
H3a	W → P	0.016	0.047	0.337	0.025*	Supported
H3b	W → B	0.032	0.056	0.570	0.252	Not Supported
H3c	W → P → B	0.409	0.898	0.455	0.005**	Supported
H4a	S → P	-0.147	0.044	-3.341	0.038*	Supported
H4b	S → B	0.105	0.051	2.055	0.001**	Supported
H4c	S → P → B	0.012	0.051	0.235	0.066†	Supported
H5a	I → P	0.047	0.048	0.969	0.171	Not Supported
H5b	I → B	0.296	0.097	3.052	0.053†	Supported
H5c	I → P → B	0.010	0.049	0.204	0.780	Not Supported
H6a	L → P	0.032	0.041	0.772	0.035*	Supported
H6b	L → B	0.006	0.049	0.130	0.025*	Supported
H6c	L → P → B	0.048	0.118	0.406	0.007**	Supported
H7a	J → P	0.069	0.039	1.756	0.739	Not Supported
H7b	J → B	0.093	0.047	1.978	0.000***	Supported
H7c	J → P → B	0.050	0.056	0.892	0.253	Not Supported
H8a	T → P	0.155	0.088	1.757	0.025*	Supported

H8b	T → B	0.294	0.110	2.687	0.014*	Supported
H8c	T → P → B	0.182	0.457	0.398	0.005**	Supported
H9	P → B	0.282	0.072	3.917	0.030*	Supported

Note: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; M= Customer motivation; C=Customer collaboration; W=EWOM; S=Information sharing; I=Customer involvement; L=Long term partnership; J=Joint problem solving, T=Technology based CRM, P=Product innovation, B= Business performance.

4.11.1 Hypothesis 1

[H1a]: There is a significant relationship between customer motivation and product innovation.

[H1b]: There is a significant relationship between customer motivation and business performance.

[H1c]: Product innovation mediates the relationship between customer motivation and business performance.

For the three hypotheses about customer motivation (H1a, H1b, and H1c), an examination of the structural parameters demonstrates all relationships except one are as hypothesized. Customer motivation ($\beta = -0.046$, $z = -0.782$, $p = 0.004$) has positively related product innovation, offering evidence to aid hypothesis H1a. However, contrary to hypothesis H2b, customer motivation ($\beta = -0.011$, $z = -0.158$, $p = 0.261$) is not significant to business performance. Hypothesis H1c is statistically supported by the result of the mediation test, in which product innovation ($\beta = 0.049$, $z = 0.671$, $p = 0.003$) is a full mediator of the effect of customer motivation on business performance.

4.11.2 Hypothesis 2

[H2a]: There is a significant relationship between customer collaboration and product innovation

[H2b]: There is a significant relationship between customer collaboration with customers and Business performance.

[H2c]: Product innovation mediates the relationship between customer collaboration and business performance.

The research outcomes showed that customer collaboration ($\beta = -0.164$, $z = -1.761$, $p = 0.043$) was significantly related to product innovation, supporting hypothesis H2a. Similarly, customer collaboration ($\beta = -0.225$, $z = -2.007$, $p = 0.019$) had a significant influence on business performance, supporting hypothesis H2b. Finally product innovation ($\beta = 0.030$, $z = 0.454$, $p = 0.015$) was found to have full mediating effect on the association between customer collaboration and Business performance, supporting hypothesis H2c. As a result hypotheses H2a, H2b and H2c were accepted accordingly.

4.11.3 Hypothesis 3

[H3a]: There is a significant relationship between EWOM and product innovation.

[H3b]: There is a significant relationship between EWOM and Business performance.

[H3c]: Product innovation mediates the relationship between EWOM and business performance.

In this case, EWOM ($\beta = 0.016$, $z = 0.337$, $p = 0.025$) was product innovation, supporting hypothesis H3a. Similarly, EWOM ($\beta = 0.032$, $z = 0.570$, $p = 0.252$) had no significant influence on business performance, no supporting hypothesis H3b. Finally product innovation ($\beta = 0.409$, $z = 0.455$, $p = 0.005$) was found to have full mediating effect on the association between EWOM and Business performance, supporting hypothesis H3c.

4.11.4 Hypothesis 4

[H4a]: There is a significant relationship between information sharing and product innovation.

[H4b]: There is a significant relationship between information sharing and Business performance.

[H4c]: Product innovation mediates the relationship between Information sharing and business performance.

For the three hypotheses (H4a, H4b, and H4c) about information a sharing, an evaluation of the coefficients implies that all hypotheses except H4c are supported. Information sharing ($\beta = -0.147$, $z = -2.300$, $p = 0.038$) is positive linked to Product innovation, confirming hypothesis H4a. On the other hand, hypothesis H4b isn't statistically supported because information sharing ($\beta = 0.105$, $z = 2.055$, $p = 0.001$) have a significant effect on Business performance. As expected, product innovation ($\beta = 0.012$, $z = 0.235$, $p = 0.066$) isn't found to be a full mediator for information sharing in relationship Business performance, providing evidence to establish hypothesis H4c.

4.11.5 Hypothesis 5

[H5a]: There is a significant relationship between customer involvement and product innovation.

[H5b]: There is a significant relationship between customer's involvement and Business performance.

[H5c]: Product innovation mediates the relationship between Customer Involvement and business performance.

The results of this study provide evidence to support hypothesis H5a, in which customer involvement ($\beta = 0.047$, $z = 0.969$, $p = 0.171$) is found to have no significant and negative relationship with product innovation. Contrary to hypothesis H5b, customer involvement ($\beta = 0.296$, $z = 2.844$, $p = 0.053$) does not have a significant effect on business performance. As hypothesized, the influence of customer involvement on Business performance is not fully mediated by product innovation ($\beta = 0.010$, $z = 0.204$, $p = 0.780$), in support of hypothesis H5c.

4.11.6 Hypothesis 6

[H6a]: There is a significant relationship between Long-term partnership and product Innovation.

[H6b]: There is a significant relationship between Long-term partnership and Business performance.

[H6c]: Product innovation mediates the relationship between Long-term partnerships and business performances.

The result shows that long-term partnership ($\beta = 0.032, z = 0.772, p = 0.035$) is significant to product innovation. In this instance, product innovation ($\beta = -0.048, z = 0.406, p = 0.007$) is found to be a full mediator for Long term partnership in relation business performance. However, there is a significant and negative relationship between Long-term partnerships ($\beta = 0.006, z = 0.130, p = 0.025$) and Business performance. As a result, hypothesis H6b is held true. Hence, hypotheses H6a, H6b and H6c are supported.

4.11.7 Hypothesis 7

[H7a]: There is a significant relationship between Joint problem solving and product Innovation.

[H7b]: There is a significant relationship between Joint problem solving and Business performance.

[H7c]: Product innovation mediates the relationship between Joint problem solving and business performance.

The result expressed that Joint problem solving ($\beta = 0.069, z = 1.756, p = 0.739$) has no significant influence on product innovation. However Joint problem solving ($\beta = 0.093, z = 1.978, p = 0.000$) is found have significant effect on business performance. On the other hand, product innovation ($\beta = 0.050, z = 0.892, p = 0.253$) is found to have

no mediating effect between joint problem solving and business performance. Consequently, hypotheses H7b was accepted while H7a and H7c were rejected.

4.11.8 Hypothesis 8

[H8a]: There is a significant relationship between Technology based CRM and Product Innovation.

[H8b]: There is a significant relationship between Technology based CRM and Business performance.

[H8c]: Product innovation mediates the relationship between Technology based CRM and business performance.

An examination of the structural parameters reviewed that Technology based CRM ($\beta = 0.155, z = 1.757, p = 0.025$) has a significant influence on product innovation. However Technology based CRM ($\beta = 0.294, z = 2.687, p = 0.014$) is found to have significance impact on business performance. Similarly, product innovation ($\beta = 0.182, z = 0.398, p = 0.005$) is found to have mediating effect between Technology based CRM and business performance.

4.11.9 Hypothesis 9

[H9]: There is a significant relationship between Product innovation and Business performance.

The research findings in this study indicate that product innovation ($\beta = 0.282$, $z = 1.695$, $p = 0.030$) is found to have a significant and positive relationship with business performance, in support of hypothesis H9. This result is consistent with the past studies (Morone and Testa, 2008, Espallardo and Ballester, 2009, Artz et al., 2010, Najib et al., 2011, Therrien et al., 2011, Tung, 2012) in which these researches have reported that product innovation has a significant and positive effect on business performance.

4.12 Summary of the Chapter

This chapter offers the findings derived from the data analysis. The descriptive analysis for all the research constructs utilized in this research is presented in Section 4.2. Section 4.3 provides the findings of the scale refinement and validation with the use of the EFA as well as the CFA. Sections 4.9 and 4.10 include SEM's statistical analysis EFA as well as the mediation utilized to find out the links among the measurement's constructs and the structural models. The outcomes of the research hypotheses are explained in Section 5.11. The following chapter will present detailed findings as well as their implications.

CHAPTER 5

DISCUSSIONS AND CONCLUSION

5.1 Introduction

This chapter discusses the findings and explains each finding within the context of current and past literature. The theoretical and practical contributions of this study would be presented. Finally, limitations and future research recommendations would also be discussed accordingly. The final section of this chapter provides concluding remarks of the study.

5.2 Overview

The primary objective of this study was to address the need for examinations of determinants of CRM and social media, product innovation and business performance of the organization. The conceptual model was synthesized from the extensive review of the literature on social media (customer motivation, customer collaboration, and EWOM) and CRM (information sharing, customer involvement, long-term partnership, joint problem solving and technology-based CRM), as expatiated in Chapter 2. First, the determinants of social media and CRM concept were explained, with detailed discussion on how these variables were selected for this study. Hence the concept of product innovation and business performance were discussed. Chapter 3 operationalizes the research methodology is defined based on the research constructs in this study. The descriptive analysis, findings from the SEM, EFA, CFA, as well as the mediation analysis, are presented in Chapter 5.

The first research objective is expressed as hypotheses on the effects of factors Social media, CRM, on product innovation (H1a to H8a). The second research objective relates to the hypothesized relationships between factors social media and CRM on business performance (H1b to H8b). The third objective relates to the hypothesized is mediating product innovation between Social media, CRM and business performance (H1c to H8c). The last research objective is expressed as hypotheses on the effect of product innovation and business performance (H9). The SEM using the AMOS software was utilized to assess the above hypotheses. The SEM displayed suitable goodness-of-fit indices. The structural model was analyzed to obtain essential inferences based on the hypotheses (Section 4.11). Based on the outcome of the analysis, empirical support was obtained for nineteen (19) out of total of twenty-five (25) hypotheses. The following section will discuss the finding for each hypothesis.

5.3 Discussions of Findings

5.3.1 Customer Motivation

[H1a]: There is a significant relationship between customer motivation and product innovation.

[H1b]: There is a significant relationship between customer motivation and business performance.

[H1c]: Product innovation mediates the relationship between customer motivation and business performance.

From Section 4.11.1 in Chapter 4, Hypothesis H1a and H1c long-term while Hypotheses H1b was rejected. That means customer motivation has no influence business performance.

Drawing on literature from previous studies Lau, Tang, and Yam, (2010), this study defines the motives for engagement of individual users or customers through social media into innovation process as co-creators for products. Customer's motivation is considered intrinsic if an activity is valued for its sake; extrinsic if they focus on potential outcomes is separated from the activity itself. Most customers are motivated by a combination of intrinsic (fun and altruism), internalized extrinsic motives (learning, reputation) and entirely extrinsic motives (payment, career prospects) (Ogawa and Pongtanalert, 2013; Yim, Chan, and Lam, 2012). Although, prior studies was found a significant effect on the customer motivation and product innovation (Füller et al., 2010) However, the impact of customer motivation on a customer motivation factors (intrinsic motivation (cognitive or learning benefits, social integrative benefits, personal integrative benefits, hedonic benefit) and extrinsic motivations) has not been tested.

Companies can use the customer's inputs for the creation of new products and let the customers participate in co-creation. Customers are armed with new tools and want to interact with firms and thereby co-create. This co-creation refers to the practice of product development or innovation that is collaboratively executed by developers and customers together (Füller et al., 2010). Hoyer et al., (2010) mentioned that specific motives for consumer participation in online communities and NPD are not completely understood. Therefore, it is essential for companies to understand why some clients are more willing wants or to engage in co-creation to innovation than others. This study supports the significant relationships between customer motivation and product innovation in Malaysian manufacturing companies.

Although studies have validated the positive effect of customer motivation on business performance (Hoyer et al., 2010), less investigation has been done on its effect on product innovation on business performance focuses on Profitability, market share, and sales volume. In this study, customer motivation did not have a significant impact on the business performance in Malaysian manufacturing companies. By successfully implementing and managing co-creation and customer motivation, a firm can potentially gain competitive advantages and business performance namely increased effectiveness and increased efficiency (Hoyer et al., 2010, Füller, Faullant, and Matzler, 2010; Füller, 2006). Motivating customers to participate directly with firms require co-creation activity evolving into its purest form, more closely correlating with how absolute value co-creation between a customer and a firm might be defined. Paulini et al., (2014), the customer must expect a benefit prior to collaborating with a value co-creation initiative and believe the benefit is achievable. Also, this study supported the mediating effect of product innovation on customer motivation and business performance in Malaysian manufacturing companies.

5.3.2 Customer Collaboration

[H2a]: There is a significant relationship between customer collaboration and product innovation

[H2b]: There is a significant relationship between customer collaboration with customers and Business performance.

[H2c]: Product innovation mediates the relationship between customer collaboration and business performance.

From Section 4.11.2 in Chapter 4, hypotheses H2a, H2b, and H2c were accepted. According to the previous studies (Kruitbosch, 2011; Gudda et al., 2013), several studies

have found that customer's collaboration is positively related to product innovation. According to Gudda et al., (2013) have researched in Kenya and they mentioned that did not investigate firm-specific customer collaboration activities that may affect the firm ability to on innovative products. Therefore, this study supports the hypothesized relationships between customer collaboration and product innovation in Malaysian manufacturing companies. Customer collaboration can be utilized as a main source of information. As such, many firms adopt the suggestions got from customer collaboration using social media channels and structure their products or services for better corresponding to the desires and needs of customers. One central area of collaboration is communication, and via open communication, collaborating customers can attain the intended goals, the open setting for communication as well as the flow of information can foster organizational innovation. The potential advantages which collaboration with customers during product innovation can provide access to new resources and capabilities that the manufacturer lacks in-house. Moreover, understanding the requirements of clients that are influential would assist the companies to obtain new strategies in problem-solving and in identifying early market trends thus enhances the probability of success with their new product development. Therefore, customer collaboration leads to product innovation advantages.

The significant relationship between customer collaboration and business performance is consistent with (Tasi, 2010). According to this proposition, Customer collaboration is crucial for an organization for enhancing its performance of product innovation. Collaborating with customers provides the benefits of identifying the opportunities for technological advancements the market and it also lowers the chances of bad design in product development itself. Also the influential customers and understanding them will be useful for the firm to develop better solutions (Cleven, 2011). It also enables the firm to identify the trends in the market in advance. Also the collaboration with customers, companies aim to decrease the costs and share the technical and financial risks (Zhang et al.,2015). Collaboration with customers offers

important opportunities to create competitive advantage and increase financial performance. High customer collaboration can result in significant improvements in overall performance resulting in high business performance and a world-class firm. However, only firms that actively transform working relationships with customers into collaborations that are mutually beneficial will achieve beneficial performances. Therefore this study supports the significant relationships between customer collaboration and business performance. This study confirms the significant the mediating effect of product innovation between customer collaboration and business performance in Malaysian manufacturing companies.

5.3.3 Electronic Word of Mouth

[H3a]: There is a significant relationship between Electronic Word of Mouth (eWOM) and product innovation.

[H3b]: There is a significant relationship between Electronic Word of Mouth (eWOM) and Business performance.

[H3c]: Product innovation mediates the relationship between Electronic Word of Mouth (eWOM) and business performance.

According to the literature review, Electronic Word of Mouth (eWOM) in this study is defined; From Section 4.11.3 in Chapter 4, hypotheses H3a and H3c were accepted while H3b was rejected. That means EWOM has no direct influence on Business performance. However, EWOM was found to have a direct effect on product innovation. Also, it was found that product innovation mediates the effect of EWOM and Business performance.

Previous research on eWOM and product innovation studies (Liu et al. 2010, Kawakami et al., 2013, Keawsujarit et al., 2013, Plotkina and Munzel., 2014, Amini et al.,2015) examined eWOM on new product, These scholars highlighted that the utilization of eWOM as a popular open source to analyze customer needs and customers experiences to assist the development of new products, also Amini et al.,(2015) highlights the contributions of earlier researchers in the domain of social media, social networking sites, consumer engagement and finally eWOM; and highlights their importance in present-day business world as also their effect on new products, companies ought to effectively use the power of eWOM and put in place consumer engagement strategy which can significantly boost sales providing an edge over competition. Also, Liu et al. (2010) highlight that Analysis of the eWOM characteristics and Opinion sharing about experiences (messages) need to conduct and this study have done in Thailand and he mentioned this research needs to explore in specific products such as food products has not yet been developed. So there is a positive significant relationship between EWOM and product innovation. They found that the number of eWOM messages can be used to predict the success of a product innovation. They also found that the number of sentences in eWOM is significant. So there is a positive significant relationship between EWOM and product innovation. Therefore this study supports the significant relationships between EWOM and product innovation in Malaysian manufacturing companies. Thus this study supports the significant relationships between eWOM and product innovation in Malaysian manufacturing companies.

Although studies are yet to investigate the direct relationship, the significant effect of eWOM on business performance can be grounded in extant literature (Zhu, 2010, Mejahdi and Saoudi, 2016). Mejahdi and Saoudi., (2016) have done studied on eWOM on marketing performance also they have mentioned this study can be explored on other variables added to measure marketing or business performance, such as (market

share, profitability...) therefore the main results of the study show that there is a significant relationship between the electronic word of mouth and the marketing performance in Algerian. Zhu and Zhang (2010) argue that companies use several online words of mouth (eWOM) channels (online reviews and blogs), to seek for information and share experiences and effects on the performance. Zhu, (2010) found the effects of eWOM on sale performance have been explored in a variety of contexts. eWOM shows that online reviews and affect firm performance in both the short- and the long-term (Berger, Sorensen, and Rasmussen 2010; Tirunillai and Tellis 2012). The finding of their research shows that, when a customer joins a firm's online community or 'like' or 'share' certain comments or their share their opinion or experiences on social media, it creates a 'recognition value' for the firm and it can be effected on firm's performance. In this study, the result showed that there is no significant relationship between eWOM and Business performance in Malaysian manufacturing companies. Hence, this study supported significant the mediating effect of product innovation between eWOM and business performance in Malaysian manufacturing companies.

5.3.4 Information Sharing

[H4a]: There is a significant relationship between information sharing and product innovation.

[H4b]: There is a significant relationship between information sharing and Business performance.

[H4c]: Product innovation mediates the relationship between Information sharing and business performance.

From Section 4.11.4 in Chapter 4, hypotheses H4a, H4b, and H4c were accepted. The finding showed that there is a significant relationship between information sharing

and product innovation in Malaysian manufacturing companies. The finding confirmed the study of (McEvily and Marcus, 2005, Datta and Christopher, 2011; Wu et al., 2011, Al-Hawary and Al-Hawary., 2016) that recognized the impact of information sharing on product innovation. According to Lin, (2010) information sharing refers to sharing and exchange essential and exclusive information through interactive activities between manufacturers and their customers. According to Wu et al., (2011) Sharing of information from customers and the direct association with an organization's financial performances has been explored before, but the association to the innovativeness of product is less studied. They found which using information with customers facilitate the development of new products, more varied and changes in the operations of existing products to meet the needs of special target markets. Therefore, sharing information between manufacturers and customers should increase the value of new products. Sharing of information with customers is said to build relationships that are valuable where knowledge can be gathered, but findings do not indicate the effect of sharing information on product innovation (Datta and Christopher, 2011; Wu et al., 2011). In other research (Fang et al., 2007) found that information sharing between firms and their customers assists in examining the best potential and unique capability in finding product value. Thus, information sharing between companies and their customers could increase new product value.

The results confirmed the significant relationship between information sharing on Business performance that is in line with the study undertaken by Mentzer et al. (2000), Wu et al. (2011) and Datta and Christopher (2011) it means that effective information sharing enhances mutual understanding, which reduces miscommunication and prevents unnecessary mistakes, thereby decreasing transaction costs. Williamson (2012) suggests that when information is impacted and (not shared between the parties,) market failure is more likely to happen. Datta and Christopher (2011) stated that when the firms engage customer information sharing, their overall productivity, profitability and efficiency increases, also he mentioned there is need to be more research explored

the effect of information sharing on Business performance. Based on the result mentioned above and supportive literature the information sharing has a significant impact on Business performance. Wu et al. (2011) stated that those organizations involving much in the sharing of information have competitive advantages in the market. It is because when the sharing of information takes place between customers and the organization during product innovation itself, the chances of market failure is less because of the product needs of the customers. Therefore this study supported significant the mediating effect of product innovation between information sharing and business performance in Malaysian manufacturing companies.

5.3.5 Customer Involvement

[H5a]: There is a significant relationship between customer involvement and product innovation.

[H5b]: There is a significant relationship between customer's involvement and Business performance.

[H5c]: Product innovation mediates the relationship between Customer Involvement and business performance.

From Section 4.11.5 in Chapter 4, hypotheses H5b were accepted while H5a and H5c were rejected. That means customer involvement has no direct influence on product innovation. Also, it was found that product innovation no mediates the effect of customer involvement and Business performance.

Multiple studies have showed the value of the involvement of customers in new product and (Knudsen, 2007., Desouza et al., 2008; Kristensson et al., 2008; Carbonell, Rodriguez-Escudero and Pujari, 2009; Enkel et al., 2009; Piller, Ihl and Vossen, 2010, Bhalla, 2010) they found that involvement of customer during the new product has been recognized as one of the most important aspects for manufacturers for produce successful new products. Guided by this increasing awareness of the customer's importance in a new product, firms are actively involving customers in the innovation. Therefore (Carbonell et al. 2009, Knudsen 2007, Lager, 2010, Cheng et al., 2012, Wang et al., 2013) in their studies argued that has nothing much to be done with the involvement of customers in product innovation. Also involving customers is considered an important factor is impacting new product success. Nevertheless, most researchers have only concentrated on examining the particular factors of customer involvement in executing new product development activities. The present study found that there is no significant relationship between customer involvement and product innovation in Malaysian manufacturing companies.

In this current study, customer's involvement was found to have a direct influence on Business performance in the Malaysian manufacturing companies. Based on the previous literature, (Carbonell et al.'s 2009, Svendsen et al., 2011), In contrast, found that customer involvement can increase the firm's sales and performance. However, customer involvement allows the customers to be involved in developing new and enhanced functional requirements, modifications to a product design to lower the cost of production or to design a product that addresses the customers' special needs and issues to a larger extent. Organizations listen to customers, their preferences, needs, and desire in order to identify their ideas and wants to perform better regarding product development and their sustainability in the competitive market and performance (Svendsen et al., 2011). In this research not supported the mediating effect of product innovation on Customer involvement and business performance in Malaysian manufacturing companies.

5.3.6 Long-term Partnership

[H6a]: There is a significant relationship between Long-term partnership and product Innovation.

[H6b]: There is a significant relationship between Long-term partnership and Business performance.

[H6c]: Product innovation mediates the relationship between Long-term partnerships and business performances.

From Section 4.11.6 in Chapter 4, hypotheses H6a, H6b, and H6c were accepted. The present findings support the hypothesized relationships between long-term partnership and product Innovation. According to the previous literature from Long-term partnerships studies (Theron et al. 2008, Lin et al., 2010, Ganesan et al., 2010, Li and Sang., 2011, Aarikka-Stenroos and Jaakkola, 2012, Sjöberg, 2013), less investigations have on its effect on the long-term partnership and product Innovation. Thus, it is argued that long-term partnerships result in both negative and positive effects on firms' product innovation. Therefore, firms should focus on long-term partnerships if they aim to achieve some positive effects on their product innovation. Nyadzayo (2010) and Kuusik (2007) highlighted that in their research has not been explored to the same extent as trust, commitment but are as important in the establishment and maintenance of long-term partnership with customers.

Based on the previous research, (Ganesan et al., 2010, Lumpkin et al. 2010), The Studies states that the long-term partnership can yield benefits including reduction of uncertainty and enhanced performance. As per Lumpkin et al. (2010), a business long-term partnership can yield considerably enhanced performance for the

organization, which might lead to uniqueness, the organization a competitive advantage. Lin et al., (2010) mentioned that if a business aims to maximize its long-term performance, it must build, maintain, and enhance long-term and mutually beneficial relationships. Past studies revealed that long-term partnerships have increased mutual benefits (Anderson and Weitz, 1992) and improved the relationship of performance results (Noorderwier, John, and Nevin 1990). Likewise, Kalwani and Narayandas (1995) found that maintaining close relationships with customers in the long-run lead to high profitability through better understanding and servicing of customer needs. Therefore, less investigation has been done on its effect Long-term partnership and Business performance and also it can be done with other business performance constructs. However, its significant effect on Long-term partnership on Business performance in Malaysian manufacturing companies. Hence this research result has added confirmation that the mediating effect of product innovation between long-term partnership and business performance in Malaysian manufacturing companies.

5.3.7 Joint Problem Solving

[H7a]: There is a significant relationship between Joint problem solving and product Innovation.

[H7b]: There is a significant relationship between Joint problem solving and Business performance.

[H7c]: Product innovation mediates the relationship between Joint problem solving and business performance.

From Section 4.11.7 in Chapter 4, hypotheses H7b were accepted while H7a and H7c were rejected. That means Joint problem solving has no direct influence on product

innovation. Also, it was found that product innovation no mediates the effect of Joint problem solving and Business performance.

Based on the previous literature Lin et al., (2010) refers that the collaboration between manufacturers and customers in solving problems together and sharing responsibilities when they encounter difficult or unexpected situations in conventional terms joint problem solving is defined narrowly. Also other study by Song et al. (2010) mentioned that joint problem solving systems enables an organization for drawing on the inputs, experience and ability which the customers and supplier organizations have to develop forms of associating with disagreements and in return to be enhanced in innovation terms, As the joint problem-solving extent increase, the collaboration and recognition of new information also increases, specifically regarding the needs as well as constraints which comes during the progress. Lin et al.,(2010) found that Joint problem solving is considered as an important factor influencing the new product success and development. On the other hand, Huang et al. (2008) and Ghafari et al., (2012) it is noted that joint problem-solving is a major factor in the product innovation. When customers are involved in problem-solving about a product design and share information, firms can enhance the quality and capacity of product in terms of the technical process more significantly. Thus, the factor of joint problem solving affects innovation which leads to product improvement. The researchers suggested that the effect of joint problem solving on product innovation directly need to be explored and these research findings that no significant relationship between Joint problem solving and product Innovation in Malaysian manufacturing companies.

According to Lin et al., (2010) proposed that a firm with useful association with their customer has a competitive advantage, as due to the synergy among them in association with joint problem-solving activities. Also, Islam, (2010) found that Collaboration between the firm and its customers for problem-solving as well as sharing

the responsibility together when an issue arises or tough or unpredicted situations arise. Also, based on prior findings there is a positive relationship between joint problem solving and firm performance (Helper and Sako, 1995; Robert, Petersen, Handfield, and Ragatz, 1998, Nwokah 2015). Therefore, there is support in the findings of this research for the significant effect of Joint problem solving on Business performance in Malaysian manufacturing organizations. Moreover, this study not supported significant the mediating product innovation between Joint problem solving and product Business performance in Malaysian manufacturing companies.

5.3.8 Technology Based CRM

[H8a]: There is a significant relationship between Technology based CRM and Product Innovation.

[H8b]: There is a significant relationship between Technology based CRM and Business performance.

[H8c]: Product innovation mediates the relationship between Technology based CRM and business performance.

From Section 4.11.8 in Chapter 4, hypotheses H8a, H8b, and H8c were accepted. Different researches acknowledged the role of information systems and technology CRM in supporting innovation (Tarafdar and Gordon, 2007; Khosrow-Pour, 2006, Lin et al., 2010). Lin et al., (2010) claimed that manufacturers must apply the technology of information (IT), like online data analysis, customer information systems, mining of data, and service centers, for understanding and communicate with their clients. Manufacturers can offer fast responding to customers request for new product innovation. So, the technology-based CRM can promote innovative of

product. However, these technological benefits are not recognized. Also studies by Ahearne et al. (2007) and Saini et al. (2010), they found that 50-70% of companies using a CRM strategy fail, since the firm does not successfully integrate the tool with the technology in innovation. Sin et al., (2005) found that technology-based CRM engages the companies those using computer technologies to ease different activities of CRM and actively provide technical help to clients, such as storage of data, data mining, and CRM software systems. Therefore, this study supported the relationship between technology-based CRM and product innovation in Malaysian manufacturing companies.

Technology-based CRM has a crucial role in organizational performance. Several studies (Kasim and Minai, 2009, Mohammed and Rashid, 2012 Kim et al. , 2012, Borsaly., 2014), findings on the effect of IT on firm performance are similar to the findings of a positive function of IT in CRM strategies. This type of studies shows that most customer-centered plans are not able to attain their objective without the aid of IT (Abdullateef et al., 2010). Dutu and Halmajan (2011), Kasim and Minai (2009) stated that without proper implementation of relevant IT and other technological elements, CRM could be a failure. IT supports the association of a company with its customers. Chang, Park, and Chaiy (2010) point out that CRM technologies enhance the capabilities of marketing by offering essential customer related information which then assists the managers in attaining particular marketing objectives more efficiently. On the other hand, Kim et al., (2012) found that CRM technology has been instrumental in collecting, analyzing and translating various customer information to improve customer's relationship. By transforming the customer data into useful information, CRM can improve the overall firm performance. Also Mohammed and Rashid, (2012) conducted on the effect of organizational information technology on performance pointed to the fact that adopting customer by organizations hardly achieves the desired objectives with an absence of adequate information technology. This research result has shown that technology-based CRM affects on business performance in Malaysian manufacturing companies. The mediating effect of product innovation between

technology-based CRM and business performance is yet to be investigated. Therefore this study supported that product innovation has mediating effect between technology-based CRM and business performance in Malaysian manufacturing companies.

5.3.9 Product Innovation and Business Performance

[H9]: There is a significant relationship between Product innovation and Business Performance.

From Section 4.11.9 in Chapter 4, Hypothesis H9 was accepted. A study by Gunday et al. (2011) explored the effects of product innovation on different aspects of firm performance, including achievements in production, marketing, and finance, through an empirical study covering Turkish manufacturing firms in different industries. At the very same time, the association between innovation of product and performance of the business has been studied by many scholars (Polder et al. 2010, Lau et al., 2010, Camison and Lopez, 2010, Najib and Kiminami 2011, Gunday et al. 2011, Tung 2012, Löfsten, 2014). According to Alam et al.(2013) probed the impact of innovative activities on the corporate performance by the measurement of sales revenue, market share as well a rate of profit. Also Najib et al., (2011) it was indicated that innovation and performance of the organization are positively related. This was regarding relative profitability, market share as well as growth. Ooi et al., (2012)

Innovation plays a significant role in helping business to attain a sustainable competitive edge, especially in developing countries such as Malaysia; also product innovation is almost unknown and weak in Malaysian manufacturing companies, they suggested there is need to explore the relationship between product innovation and business performance in Malaysia. However, the study of product innovation and its relationship with business performance still lacking in the Manufacturing industry (Najib, 2011, Gunday et al.

2011, Ismail. et al., 2014). Hence this research result has added confirmation that product innovation has a significant effect on business performance in the Manufacturing companies in Malaysia.

5.4 Achievement of Objectives

RO1.To assess the relationship between social media and product innovation in Malaysian manufacturing company

The aim of this objective is to evaluate the relationship between social media and product innovation. H1a to H3a are evaluating the relationship; Out of 3 hypotheses, all were supported. So, in general, the objective was achieved, and the relationship between social media and product innovation is supported.

RO2. To understand the relationship between CRM and product innovation in Malaysian manufacturing company

This objective evaluates the relationship between CRM and product innovation. Hypotheses H4a to H8a are evaluating the relationship; Out of 5 hypotheses three was supported, and another two was not supported. Therefore three determinants of CRM (information sharing, long-term partnership, CRM based on technology) have a direct effect on Product innovation and were supported by this study. However, another two determinants of CRM (customers involvement, Joint problem solving) have no direct impact on product innovation and is not supported in this study.

RO3.To discover whether product innovation mediates the relationship between social media and business performance in Malaysian manufacturing company

The aim of this objective is to evaluate the mediating effect of product innovation on the relationship between social media and business performance. Hypotheses H1c to H3c are evaluating this mediating effect; Out of 3 hypotheses all was supported, and it shows that the mediating effect of product innovation on the relationship between social media and business performance is supported according to this study.

RO4. To find out whether product innovation mediates the relationship between CRM and business performance in Malaysian manufacturing company

The aim of this objective is to evaluate the mediating effect of product innovation on the relationship between CRM and business performance. Hypotheses H4c to H8c are evaluating this mediating effect; Out of 5 hypotheses three was supported, and another two was not supported. The three determinants of CRM (information sharing, long-term partnership, CRM based on technology) had a mediating effect of product innovation on the relationship between CRM and business performance and was supported by this study. Whatever another two determinants of CRM (customers involvement, Joint problem solving) shows that the mediating effect of product innovation on the relationship between CRM and business performance is not supported according to this study.

RO5. To understand the effect of product innovations on business performance in Malaysian manufacturing company

This objective evaluates the relationship between product innovations and business performance. Hypotheses H9 Product this relationship; it is supported by this study, and it shows that product innovations have a direct effect on business performance.

RO6.To identify the relationship between social media and business performance in Malaysian manufacturing company

This objective evaluates the relationship between social media and business performance. Hypotheses H1b to H3b are evaluating the relationship; Out of 3 hypotheses one was supported, and another two was not supported. Also, one determinant of social media (customer collaboration) had a direct effect on business performance and was supported by this study. However, another two determinates of social media (customer motivation and electronic word of mouth) have no direct effect on business performance and are not supported in this study.

RO7.To examine the relationship between CRM and business performance in Malaysian manufacturing company

This objective evaluates the relationship between CRM and business performance. Hypotheses H4b to H8b are evaluating the relationship; Out of 5 hypotheses all was supported and have a direct effect on business performance. So, in general, the objective was achieved, and the relationship between CRM and business performance is supported according to this study.

5.5 Contributions of the Study

A major benefit is that the study starts with an important set of social media, CRM, product innovation and business performance and uses data that are grounded in actual experiences of the manufacturing industry in Malaysia. This study should help clarify for managers the social media, CRM, product innovation that affect company's performance. Establishing a model of social media, CRM, product innovation and business performance in the industry of interest should help managers better understand

how social media, CRM factors, product innovation fit together into a total strategy. In general, this study will have two main contributions regarding theoretical as well as practical contributions.

5.5.1 Theoretical Contributions

- According to Patil (2014) researched that combined social media and customer relationship management and they mentioned that more research could be done on combining social media and CRM. According to Arman (2014), exploring the integrative elements of social media and CRM is essential in creating an effective and efficient business performance. Also, Buss and Begorgis, (2015) Studies have been dedicated to the areas of individual SM and CRM, but less focus has been placed on the joint research of these two areas. Thus, this study aims to fill the research gap by combining these research areas of SM and CRM which have mainly been studied independently in the past. Thus, the aim of this research is to find out how firms use SM and CRM. Therefore, in this study investigated the combination of SM and CRM in the Malaysian context.
- The previous study has done the effect of different factors social media on business performance (Lovejoy and Saxton, 2012, Parveen et al., 2015), Parveen et al., (2015) have done a research of various usage and impact factors in relation to social media on business performance in large organizations in Malaysia, and also they have mentioned in further study can be done in different sized organizations, such as small and medium. Smith and Mogos (2013) highlights there are not many researches on the effect of social media on the performance of the organization in various industries such as the manufacturing sector. Hence, there is need to explore the association among social media as well as

the business performance in the manufacturing firms. Research on the factors influencing the social media among SMEs is still lacking (Verheyden and K. Goeman, 2013) and (Syaharizad and Nor Azrin., 2016) also; lack of research on social media by SMEs in Malaysia is the purpose of the researcher's interest to study more in this area. Given that, it is crucial for social media researchers, deeper understanding social media factors in SMEs companies. According to Parveen, (2012) investigated the factors that influence the social media and its subsequent impact on organizations performance. Also, he mentioned the impact of social media on organizational performance had not been empirically investigated. Therefore this study provided the relationship between social media on business performance.

- Several studies have been undertaken in the context of CRM and its impact on firm performance. The mixed results could be due to insufficient understanding of the relationship between CRM and firm performance. (Ernst et al., 2011; Reimann, Schilke, and Thomas, 2010). According to Mohamad, et al. (2014) mentioned that there is a need to explore the specific characteristics of CRM on firm performance in both theoretical and empirical investigation. Siti Hajar, 2013 and Mohamad et al. (2014) and Madhovi and Dhliwayo, (2017) suggested lack of study in CRM on firm performance to include various firms and sectors including the manufacturing sector. Also, Aphale, (2008), Salojärvi and Sainio (2015) in the further study mentioned there is research scarcity in the area of evaluating the impact of CRM technology implementation on the performance of business. Need to realize the importance of implementation of CRM systems on the financial and business aspects such as overall profitability. Therefore, this study investigated this relationship and found support for the effect of CRM and business performance.

- Artz et al. (2010) conducted the effect of product innovations on the performance of firms in various sectors in the US and Canada, and he suggested it can be done in the different country. Tebogo and Renier, (2016) and Tuan et al.,(2016) have researched product innovation and business performance, and they have mentioned in future of studies there is the need to more investigate the relationship between product innovation and organizational performance. Also, Löffsten, H., (2014) Suggested the association between innovation of product and business performance. However, researches related to the innovation of product on business performance in Malaysia are less and still lacking (Mol and Birkinshaw, 2009; Raymond and St-pierre, 2010, Chandran, 2013, Nasurdi. et al., 2014, Rajapathirana and Hui, 2017). According to Najib, (2011), a study was carried out on the link between business performance and product innovation in the Indonesian SME food processing sector; however, certain limitations were faced such as the limited sample size and the limited variations in the sectors. Also, he suggested that more research can be done on the relationship between product innovations on business performance in a variety of industries such as manufacturing; also he has mentioned there is a need to an investigation of innovation on business performance such as profitability, market share as well as growth. Therefore, the present study examined the relationship since there is lack of researches' which explores the relationship between product innovation and business performance in Malaysia.

- Present research contributes to CRM literature by empirically investigating the mediating effect of product innovation. In many researches on CRM only examined the direct effect of some variables on the product innovation and business performance as a result. However, the mediating effect of product innovation relationships between CRM and business performance is still lacking. Ernst et al. (2011), Little to no is done research on product innovation as mediator within Customer relationship management (CRM) and business

performance and he has mentioned in the future studies these aspects can be addressed and assessed empirically if these and other factors of success of new products mediate the effect of CRM on the performance of the new product. Also, Hui Hu et al., (2015) in the further study suggested that need to investigate the effects of CRM mediate innovation on organizational financial or non-financial performances. So this research bridges this gap by supporting the mediating effect of product innovation between factors of CRM such as information sharing, customer involvement, long-term partnership, joint problem solving, and technology-based CRM and business performance.

- Chapter one had highlighted the lack of study of product innovation in the Malaysian manufacturing industries. Most of the previous researches on social media examined the direct effect of product innovation and business performance. Also Mpando and Sandada, (2015), assessing the mediating role of innovation in the relationship between social media and business performance in the SME sector in the African country. They suggested there is need more investigation on the mediating effect of product innovation on social media and company's outcome in other countries and improved by focusing on a specific sector or industry. The result of this research confirmed the mediating product innovation, social media factors, and business performance. It confirmed the mediation product innovation in the relationship between social media factors and business performance in Malaysian manufacturing companies.
- In line with previous studies, there was limited research that considered social media on product innovation. Due to the Idota et al., (2015) suggested the need to identify how social media is used for successful product innovation. The number of firms that use social media for product innovation is still too small to clarify how social media is used for successful product innovation and success

factors need to identify. According to Stock et al., (2013) mentioned that in Future research can examine a broader set of customer motivation factors; intrinsic motivation (cognitive or learning benefits, social integrative benefits, personal integrative benefits, hedonic benefit) and extrinsic motivations effects on the product innovation. This study proposed three factors for social media, which are important, such as customer motivation, customer collaboration and electronic word of mouth.

- Amelie, (2013) did in Scandinavian market for the relationship between CRM and product innovation, and highlighted this study is based on a limited geographical boundary; it might be beneficial to examine the same phenomena on various other geographical areas. According to Sjöberg, Amelie (2013) this study has not examined each factor in the CRM field, and it is recommended that examining other aspects of the CRM companies could enhance the area of product innovation. Therefore, this research investigated relationship and found support for the effect of sharing of information, the involvement of customers, long-term relationship, Joint problem solving and CRM based on technology and business performance on product innovation. Also, Jaelani, (2016) mentioned in further research that needs to investigate the factors within the topic of CRM, and he suggested explore other components within CRM firms can improve the product innovation.
- The last contribution of this research is the construction of a theoretically based model which assimilates the determinants of CRM, social media, product innovation and business performance. This study offers the establishment of an empirical relationship between the suggested variables in the structural model of determinants social media, CRM effective product innovation and business performance for Malaysian manufacturing organizations. However, researches

related to the innovation of product in Malaysia are less and still lacking (Mol and Birkinshaw, 2009; Raymond and St-pierre, 2010, Chandran, 2013, Nasurdi. et al., 2014, Rajapathirana and Hui, 2017) Also this research has considerable significance in Malaysian manufacturing companies. This study establishes a research model which explains different CRM determinants (information sharing, customer involvement, long-term partnership, joint problem solving and technology-based CRM) have different relationships with determinants variables product innovation and business performance and social media (customer motivation, customer collaboration, and EWOM) with determinants variables product innovation and business performance. The results and findings of this study will have considerable benefits for academicians in assessing the present state of Social media and CRM and product innovation and their effects in relating its concepts within the background of Malaysian manufacturing industry.

5.5.2 Practical Contributions

Product innovation in Malaysia is essential for the nation to develop a more superior and higher valued manufacturing products that can compete on a global scale in alignment with recommendations by the Malaysian National Innovation Model (National Innovation Council, 2014). SMEs in Malaysia still face many obstacles in the area product innovation despite the numerous supports from the government. At present, Malaysia has placed more emphasis on funding for product innovation for the manufacturing industry. In this regard, this research suggested some practical insights to the management of the organization in effecting of product innovation and increases the performance of the organization. Also, this study will encourage manufacturing industries to adopt product innovation in order to build the right organizational performance in the marketplace.

The Economic Transformation Program (ETP) was introduced by the government to spur the country's manufacturing sector in line to attain Vision 2020. Therefore, firms have been forced to innovate if they wish to achieve success. The ability to innovate is the main factor for enhancing organizational performance and ensuring success. Thus, it is essential for manufacturing firms to understand better the factors that affect creativity development so that they can be innovative and realize the aspects of creativity which could assist them in developing great innovative products and clarify the moderating determinants of profitable growth (Akmar, 2013). So, this study identified the determinant of social media, CRM and product innovation in this research would help to achieve business performance.

The proposed research model of this study is helpful for the practitioners and managers to assess the relationships between different social media and CRM determinant, product innovation and business performance experienced by organizations. Because this research model includes an analysis of three independent determinants of social media (customer motivation, customer collaboration, and EWOM) and five independent determinants of CRM in relation to product innovation and business performance, the practitioners and managers can gain insight into the positive and negative influences of social media and CRM on product innovation and business performance by manufacturing companies in Malaysia. Also, this study will also help managers in manufacturing companies to be aware of the importance of being creative and innovative in the workplace. Finally, manufacturing companies can also inspire to understand to having innovation can bring profits to the company. The findings provide managers and practitioners to recognize and develop an appropriate implementation for social media and CRM to improve product innovation experienced by manufacturing companies in Malaysia.

This research identifies the determinants and proposes a model for social media, CRM, product innovation and business performance. It can be surmised that the findings and outcomes of this study will benefit SMEs and MNCs in their run toward improving their activities. The proposed model will help managers by offering them a long-term strategy guide since the detailed findings will highlight particular criteria for implementation to improve firms' capabilities for enhanced performance as well as survival. Therefore this study mixed determinants for organizations to have effective Product Innovation which was not identified in Malaysian organizations.

The other contribution to this study is that combined social media and customer relationship management. This study offers a systematic research design supported by the theoretical framework to combine Social media and CRM and impact on product innovation which ultimately affects business performance. Based on the provided literature, this research would help to identify the proper determinants of social media and also CRM of manufacturing industry in Malaysia.

Scholars have acknowledged in previous research as the foundation for product innovation (Artz, 2010, Therrien, et al., 2011, Tung, 2012, Hoonsopon and Ruenron 2012, Kotler and Keller, 2012, Rosli and Sidek 2013, Camison and Lopez, 2014). Also, no study has done the mixed of determinants effects product innovation in a model. Therefore this study offers clarification by conceptualizing the relationships among the social media, CRM on product innovation and business performance.

5.6 Limitation

As with other studies, this study faces several limitations. The following sub-sections will discuss the limitations faced in this study.

Firstly, this study utilized a cross-sectional design, about collecting and comparing data from a large sample size from one given point in time. Also, there could be lagged relationship effects among the research constructs of social media, CRM, product innovation and business performance. Even though the cross-sectional data could be useful in the prediction of relations among variables, it does not examine the changes that could occur over time in the hypothesized links. Due to these factors, the robustness of the constructs could be better understood in a longitudinal study approach. Nevertheless, study scope was determined based on the constraints of time and resources, as is normally the case in a doctorate study, which makes studying an area using the longitudinal approach rather difficult to achieve. However, the results of this study using the cross-sectional approach offers a strong basis for future studies which could be carried out using a longitudinal approach. Moreover, it is also possible that some of the hypotheses could show a strengthened tie if studied over a period of time.

Second, the present study was constrained by the fact that data collected and analyzed came from managers that who have Social media and CRM systems in place; the findings of this study cannot be generalized across a cross-cultural population. The effect of CRM, social media and product innovation could be very different across firms in the East and West and firms from developed and developing countries. Evidence of generalization of the study results to other countries would offer academicians and practitioners a strong basis for utilizing the recommended model for research approaches and business.

Third, this research focused on the relationship between social media, CRM on product innovation on company's performance on the manufacturing companies in Malaysia. There could perhaps be significant differences if a similar research were made in other industries (such as service).

5.7 Further Research

However, the above limitations in this study provide four areas of future research.

As the data achieved through a cross-sectional approach could moderate the conclusion's strength, a longitudinal approach might be more beneficial in investigating the causal links between the observed variables in this study. A panel study could be used for longitudinal study design to examine a similar set of the sample over a longer period of time. Researchers would be able to identify response continuity and patterns and trends by examining a similar sample population over a longer period of time.

It is recommended that future studies focus on issues of sample, scale, as well as construct development and the creation of a model. This study utilized a cross-sectional design. Data for this study was gathered from SMEs and MNCs from the manufacturing sector in Malaysia. The study's justification for using the cross-sectional approach is to gather enough samples for analysis. The unit of analysis in this study is firms and not people; as such the sample size is expected to be small particularly when the survey is only distributed to firms in the manufacturing sector. This study's sampling frame thus only constituted of manufacturing firms that utilize CRM and SM. This study should be expanded given the diversity and availability of the sample size. Future studies that replicate this study should be performed in other industry-specific areas, including the service sector. Also, the response rate could be increased so that there will be a focus on a more homogeneous sample which would result in an in-depth analysis of the industry sector's traits and behavior.

In addition to using a structured questionnaire for data collection for the current study, future studies could use data taken from other places such as the triangulation

method (Jick, 1979). Using the multiple result approach could correct the underlying bias related to the self-report method thus reinforcing the phenomenon's investigative validity. Jick (1979) agrees with the importance of this method in achieving a holistic and context-rich definition of the elements of research. For this study, the between-method triangulation would involve the use in-depth interviews of managers from Malaysian manufacturing companies to strengthen the statistical results.

Another direction for further research is required to generalize the findings to a wider scope. Thus, future studies are recommended to examine this model using firms from different industry sectors as well as from various countries.

5.8 Conclusion

In conclusion, this research has concentrated on the factors of social media, CRM product innovation on business performance in Malaysian manufacturing industries. This is done by examining and establishing a research model linking the multidimensional and mediating relationships between social media, CRM, product innovation and business performance. The research hypotheses were tested in a cross-sectional survey of managers who have social media and CRM in manufacturing industry in Malaysia.

The result of this study shows that three determinants of social media namely; customer motivation, customer collaboration, and EWOM have a significant effect on product innovation and also 3 out of 5 determinants of CRM, namely; information sharing, long-term partnership, and technology-based CRM are found to have significant effects on business performance. Also, this study found that long-term partnership and joint problem solving have no significant impact on business

performance. Only 1 out of 3 determinants of the social media, namely customer motivation, customer collaboration and EWOM Analysis, are found to have significant effects on business performance. It is found in this research that motivation and EWOM have no significant effect on business performance. Also, all the determinants of CRM are found to have significant effects on business performance. Furthermore, it is found that product innovation is having a mediating impact between the following: customer motivation, customer collaboration, EWOM, information sharing, long-term partnership and technology-based CRM. Also, the findings that confirmed the product innovation have a significant effect on business performance to the manufacturing Industry.

Given these findings, the practical and theoretical contributions of the study were discussed. Similar to other sectors, the manufacturing sector functions in a robust system and processes which require continuous updates and changes. Thus, it is hoped that the results of this study can offer in-depth insight on the utilization of social media, product innovation and CRM which can lead to further studies in this area. This research applied structural equation modeling (SEM) to undertake the comprehensive data analysis and achieve a better understanding of the collected data.

APPENDIX A

Cover letter for survey questionnaire (Pilot study)

Dear Sir/Madam,

I am a PhD student (student ID: 1131600087) at the Faculty of Management, Multimedia University, Malaysia. As part of my studies towards a PhD, I am conducting a Survey for my thesis under the academic supervision of Assoc. Prof. Dr. Sreenivasan Jayashree at the FOM, Multimedia University; this research is entitled “Conceptual Framework of Social Media and Customer Relationship Management and Business Performance in Malaysian Context”. The objective of this questionnaire survey is to assess the Effect of Social Media and Customer Relationship Management on Product Innovation towards Business Performance in Malaysian Manufacturing Companies. Before I distribute the questionnaire to the employees, I wish to conduct a Pretest. The purpose of the pilot study is to test the data collection instrument, and in particular, to ascertain if the questions elicit appropriate responses. Thus, I am writing to ask your kind contribution to this pilot test. I would greatly appreciate if you could perform the following:

- 1) Please note how long it takes you to complete the questionnaire and write this on Section E: Comments.
- 2) Comment on any unclear directions, unclear questions or any ambiguities you find in the answer.
- 3) Comment if any questions seem too difficult to answer or make you feel uncomfortable to answer.
- 4) Please add any comments you feel would improve the questionnaire in any way.

Please be assured that your responses to the following questions will be used for research Purposes only and will remain strictly confidential.

Please contact me through email, as stated below.

Thank you in advance for your kind contribution in this study.

Yours sincerely,

Bentolhoda Abdollahbeigi, PhD student (ID: 1131600087)

Email:hoda_beigi@yahoo.com

SECTION A: Organization Details

This section aims to know more about you and your organization. Your answers will be used for classification purpose only. Please be ensured that the information given in this questionnaire will be kept strictly confidential.

Job Title:

Name of Organization:

Organization Address:.....

Telephone No:.....

1. Type of organization: MNC SME

2. Number of employees in your organization:

Less than 100 100-499 500-999
1000-1999 above 2000

3. Organization age:

Less than 3 years Between 3 and 10 Above 10 years

4. Social Media Play an Important Role

YES NO

5. What type of social media your company is using?

Twitter Facebook Instagram Combination of different social media tool

6. When did your company start using social media?

1-2 years 3-4 years 5-6 years above 7 years

7. Importance of customer relationship management (CRM) in your company?

- Low importance slightly importance Neutral
 Moderately important very important

8. What is the number of customers in your social media?

- Below 100 100 – 999 1000 – 4999 5000 and above

9. What is the level of turnover (MYR) achieved by your business organization in the last financial year (approximately)?

- Below 1 mil 1 – 10 mil 10 – 100 mil over 100 mil

SECTION B – Social Media Variables

This section outlines the critical components of Social media namely: (customer motivation, customer collaboration and Electronic word of mouth). The items are used to measure the level of Social media in your organization. Please circle or tick, on a scale of 1 “Strongly Disagree” to 5 “Strongly Agree”, the number which best represents your degree of agreement or disagreement with the following statements.

NO	Statements	1	2	3	4	5
M1	Learning benefits leads to customer motivation, which will enhance customer’s knowledge about the product in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M2	Learning benefits will motivate customers and leads them to share their ideas and knowledge with your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M3	Social integrative gains customers will be motivated for participating via receiving certain type of recognition in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M4	Social benefits could strengthen a consumer’s willingness to interact and exchange information in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	your company.					
M5	Social integration will raise customer's status/reputation as expert in their personal network which will affect productivity in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M6	Personal integration improves customer's satisfaction in form of helping your organization to design better products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M7	In your organization, Social networks could concrete a customer's willingness for interacting as well as exchanging with other customers or organizations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M8	Personal integration will make customers feel that their feedback is respected as contribution for innovation or improvement in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M9	In your organization, Hedonic benefits offer customers enjoyment from problem solving, idea generation through customer motivation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M10	Appropriate rewards for participating in co-creation will motivate customers for participating in activities in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M11	In your organization, customers get things like bonuses or status enhancement being active in co-creation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
C1	In your organization, Customers can first provide major inputs that Improve the Quality of innovation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C2	Having close partnership with customers during product development may help to provide access to resources that organization lack in.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C3	In your organization, customer collaboration may lead to an advantage in terms of product innovation, based on customer needs and wants through social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C4	In your organization adopting the suggestions from customer collaboration through social media and structure their products to have better corresponding to the desires and needs of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	customers.					
C5	In your organization, Utilize of customer expertise in product by using information from social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C6	In your organization, customer collaboration could be an important tool to get information about customer preferences using data which is gathered from social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C7	Social media can identify best practices that have potential applications to increase collaboration and innovation in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
W1	Your organization has willing to follow consumer opinions online via social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W2	Your organization has willing to utilize consumer feedback in developing products using social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W3	Your organization uses discussion in social media to forecast customer trends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W4	E- Word of mouth makes customers share their views and experiences in the social media which can be used for product innovation in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W5	The number of E-WOM messages can be used to predict the Success of a product or innovative products in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W6	Customer opinions which are gathered through social media plays a significant role in innovation in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W7	Your company discovers useful information from customer's E-WOM messages to promote new product effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION C – Customer relationship management (CRM)

This section includes the elements that are critical to Customer Relationship Management (CRM) activities namely: (information sharing, customer involvement, long term partnership, joint problem solving, technology based CRM). Please circle or

tick, on a scale of 1 “Strongly Disagree” to 5 “Strongly Agree”, the number which best represents your degree of agreement or disagreement with the following statements.

NO	Statements	1	2	3	4	5
S1	Information sharing between customers and your organization has a great deal of impact in maintaining a long term relationship between two parties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S2	Sharing information between customers and your organization can enhance the new product's value.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S3	In your organization greater sharing of information with customer may improve product quality and innovation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S4	Your organization shares market information with customers (Promotion information and competitive product information).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S5	Your organization shares product demand information with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S6	In your organization high quality information from customer leads to build products which receive higher level of satisfaction. (Information quality)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S7	In your organization, information sharing between manufacturers and customers can improve the trust between two parties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S8	In our organization higher performance of new product could be result of using higher quality customer information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S9	In your organization, sharing information allows the customers to be informed always and through the points of contact in which they are most likely interested.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S10	In your organization, Customers are the main source of innovative ideas for the stimulation of new products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
I1	The key clients are involved in new product activities in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I2	The key clients are involved with our organization in modifying product.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I3	The key clients are involved in periodically reviewing operations with your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I4	Your organization periodically reviews product development system to ensure that they are in line with customer's needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I5	In your organization, customer involvement can enhance the development of differentiated products and fulfil their needs and desires.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I6	In terms of innovation, your company doesn't risk much in customer's involvement. (because of the threat of losing the confidential data, ideas to the competitors)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I7	In your organization, intensity interactions can be considered as an inspiration for the ideas generated on within the organizations which can be used to develop new products through CRM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I8	Customer feedbacks and comments on web platforms can be used by your company in the process of interaction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
L1	Long term partnership between your company and its customers, will aids on many gains for both sides.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L2	Your company maintains interactive, two-way communication with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L3	Your organization cares about long term partnership with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L4	Your organization is committed to improving products in whatever customers suggest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L5	Customers are committed when they have mutual trust with your company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L6	The clients trusted by your organization are willing to provide suggestions for their products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L7	In your organization the trust is crucial in building longer term bonding with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L8	With mutual trust and understanding, your company is able to maintain close partnerships with	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	customers.					
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NO	Statements	1	2	3	4	5
J1	The key clients work with your organization to solve problems in product design.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J2	In our organization is necessary for the exchange partners to share information relevant to the problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J3	In your organization joint problem solving will increase, the collaboration and recognition of new information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J4	Joint problem- solving allows your company to draw on the insights, experience, and ability that customer firms have with a capability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J5	Joint problem- solving is easier for your organizations for enhancing product quality and technical ability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J6	Joint problem solving will improve the learning for your organization which happens in exchange relationships.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
T1	Your organization uses a call center or computer telephone integration to deal with demands of customer, complaints, and suggestions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T2	Your organization uses a service center to deal with customer suggestions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T3	Your organization has an integrated customer relationship management (CRM) performance evaluation system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T4	Your organization uses data warehousing and data mining to save customers' information for identifying that the potential customers are more valuable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T5	Your organization, establishes perfect web-based customer interaction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T6	Your Organizations utilizes technology as a key tool for improving the flow of information in their business.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

T7	Information flow will help your organization to have interactive communications with your customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T8	In your organization flow of information is regarded as a crucial element of CRM mechanism.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T9	The capture of information in your organization can be the ability in collecting and storing the relevant information pertaining to the customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T10	In your organization capture of information is a crucial dimension in CRM systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T11	Capture of information can aid in your organization having long terms association with the customers in the long run.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T12	Usage of information is an important component of CRM systems in your company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T13	In your organization, information usage is the ability for using information pertaining to customers for developing customer profiles and target market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION D – Product innovation Variables

This part of questionnaire refers to product innovation. The items used to measure the new product of your organization. Please circle or tick, on a scale of 1 “Strongly Disagree” to 5 “Strongly Agree”, the number which best represents your degree of agreement or disagreement with the following statements.

NO	Statements	1	2	3	4	5
P1	Your organization launches new products to the market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2	Your organization, frequently tries out new ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P3	In your organization new products, expands new markets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P4	Your organization launches customized products according to market demands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

P5	Your organization has developed new product lines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P6	Understanding customer needs during implementation the new products in company is important in order to have effective product innovation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7	Collaboration with external sources has become successful experience with product innovation in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P8	Your organization is able to reduce the time to develop a new product until it is launched to the market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P9	Your organization creating innovative products that is new to your company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P10	Market needs play a crucial role in the implementation of innovations in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION E – Business performance Variables

This final part of questionnaire outlines the pertinent elements that represent Business performance. The items used to measure the business performance in your organization. How would you rate the level of achievement of the following business performance items in your organization in the last three years compared to the previous years? (Five-point scales ranging from 1= ‘very unsuccessful’ to 5= ‘very successful’)

NO	Statements	1	2	3	4	5
B1	In your organization, profitability of this year increased compared to last three years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B2	Product innovation increases the general profitability in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B3	Innovation increase sales by increasing product consumption and yield additional profit in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B4	Market share can increase your firm performance by achieving more sales.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B5	Product innovation increases the market share in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B6	In your organization, market share of your product for this year increased compared to last three year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B7	Your organization is able to managing as well as directing its volume of sales.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B8	In your organization, innovation is one of the most consistent drivers of sales volume.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B9	In your organization, sales volume of this year increased compared to last three years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section F: Comments

F1: Timetaken to complete the questionnaire: _____

F2: Suggestions for questions under *Section A: Demographic Profile*:

F3: Suggestions for questions under *Section B: Social Media*:

F4: Suggestions for questions under *Section C: Customer Relationship Management*:

F5: Suggestions for questions under *Section C: Product Innovation*:

F6: Suggestions for questions under *Section C: Business Performance*:

F7: Suggestions for questions under *Section F: Comments*:

APPENDIX B

Request for Participation in Survey

Questionnaire

A Doctoral Research



*Conceptual Framework of Social Media and Customer Relationship
Management and Business Performance in
Malaysian Context*

Candidate: BENTOLHODA ABDOLLAHBEIGI

ID No: 1131600087

Supervisor: Dr. S Jayashree

Dear Sir/Madam,

I am currently conducting a PhD research at the Faculty of Management, Multimedia University, Malaysia, under the academic supervision of Assoc. Prof. Dr. Sreenivasan Jayashree. This study investigates into the relationship between Social media and CRM on product innovation and their effect on the business performance. You are required to indicate your degree of agreement or disagreement within the survey's questions in your organization. This questionnaire consists of five sections. Section A is general information about the organization, Section B measures the level of Social media being implemented in your organization, Section C measures the level of Customer relationship management (CRM), Section D measures your product innovation in your organization and section E measures the business performance in your organizations. Please clarify any unclear items prior to responding. All the data collected will be used for academic research purposes only. It will not be provided to anyone other than the researcher and the supervisor. All the data collected will be treated strictly private and confidential. No names of the companies or the personnel will be revealed or mentioned in the analysis. Kindly use the scales in the questionnaire as a guide and tick \surd the desired response. Please note that there is no right or wrong answers to the statements. The responses are merely your opinions which could be different from the others.

Thank you

.....

BENTOLHODA ABDOLLAHBEIGI

ID No: 1131600087

1. If your company is using Social Media and CRM systems Please answer the questions.

2. There are five (5) sections in this questionnaire. Please answer ALL questions in ALL sections.
3. Completion of this form will take you approximately 15 to 20 minutes.
4. Please return this questionnaire within two weeks.

SECTION A: Organization Details

This section aims to know more about you and your organization. Your answers will be used for classification purpose only. Please be ensured that the information given in this questionnaire will be kept strictly confidential.

Job Title:

Name of Organization:

Organization Address:.....

.....

.....

Telephone No:.....

1. Type of organization: MNC SME
2. Number of employees in your organization:
 Less than 100 100-499 500-999
 1000-1999 above 2000
3. Organization age:
 Less than 3 years Between 3 and 10 Above 10 years
4. Social Media Play an Important Role?
 YES NO
5. What type of social media your company is using?
 twitter Facebook Instagram Combination of different social media tools
6. When did your company start using social media?
 1-2 years 3-4 years 5-6 years above 7 years
7. Importance of customer relationship management (CRM) in your company?
 Low importance slightly importance Neutral
 Moderately important very important
8. What is the number of customers in your social media?
 Below 100 100 – 999 1000 – 4999 5000 and above
9. What is the level of turnover (MYR) achieved by your business organization in the last financial year (approximately)?
 Below 1 mil 1 – 10 mil 10 – 100 mil over 100 mil

SECTION B – Social Media Variables

This section outlines the critical components of Social media namely: (customer motivation, customer collaboration and Electronic word of mouth). The items are used to measure the level of Social media in your organization. Please circle or tick, on a scale of **1 “Strongly Disagree”** to **5 “Strongly Agree”**, the number which best represents your degree of agreement or disagreement with the following statements.

NO	Statements	1	2	3	4	5
M1	Learning benefits leads to customer motivation, which will enhance customer’s knowledge about the product in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M2	Learning benefits will motivate customers and leads them to share their ideas and knowledge with your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M3	Social integration motivates customers for participating by receiving certain type of recognition in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M4	Social benefits could strengthen a consumer’s willingness to interact and exchange information in your company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M5	Social integration will raise customer’s status/reputation as expert in their personal network which will affect productivity in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M6	Personal integration improves customer’s satisfaction in form of helping your organization to design better products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M7	Social networks could make customer’s willingness for interacting with your organization as well as other customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M8	Personal integration will make customers feel that their feedback is respected as contribution for innovation or improvement in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M9	In your organization, Hedonic benefits offer customers enjoyment from problem solving, idea generation through customer motivation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M10	Appropriate rewards for participating in co-creation will motivate customers for participating in activities in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

M11	In your organization, customers get things like bonuses or status enhancement being active in co-creation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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NO	Statements	1	2	3	4	5
W1	Your organization has willing to follow consumer opinions online via social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W2	Your organization has willing to utilize consumer feedback in developing products using social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W3	Your organization uses discussion in social media to forecast customer trends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W4	E- Word of mouth makes customers share their views and experiences in the social media which can be used for product innovation in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W5	The number of E-WOM messages can be used to predict the Success of a product or innovative products in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W6	Customer opinions which are gathered through social media plays a significant role in innovation in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W7	Your company discovers useful information from customer's E-WOM messages to promote new product effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION C – Customer relationship management (CRM)

This section includes the elements that are critical to Customer Relationship Management (CRM) activities namely: (information sharing, customer involvement, long term partnership, joint problem solving, technology based CRM). Please circle or tick, on a scale of 1 “Strongly Disagree” to 5 “Strongly Agree”, the number which best represents your degree of agreement or disagreement with the following statements.

NO	Statements	1	2	3	4	5
S1	Information sharing between customers and your	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	organization has a great deal of impact in maintaining a long term relationship between two parties.					
S2	Sharing information between customers and your organization can enhance the new product's value.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S3	In your organization greater sharing of information with customer may improve product quality and innovation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S4	Your organization shares market information with customers (Promotion information and competitive product information).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S5	Your organization shares product demand information with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S6	In your organization high quality information from customer leads to build products which receive higher level of satisfaction. (Information quality)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S7	In your organization, information sharing between manufacturers and customers can improve the trust between two parties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S8	In your organization higher value of new product could be result of using higher quality customer's information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S9	In your organization, sharing information allows the customers to be informed always and through the points of contact in which they are most likely interested.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S10	In your organization, customers are the main source of innovative ideas for making new products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
I1	The key clients are involved in new product activities in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I2	The key clients are involved in your organization with modifying new products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I3	The key clients are involved in periodically reviewing operations with your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I4	Your organization periodically reviews product development system to ensure that they are in line with customer's needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I5	In your organization, customer involvement can	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	enhance the development of differentiated products and fulfil their needs and desires.					
I6	In terms of innovation, your company doesn't risk much in customer's involvement. (because of the threat of losing the confidential data, ideas to the competitors)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I7	In your organization, intensity interactions can be considered as an inspiration for the ideas generated on within the organizations which can be used to develop new products through CRM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I8	Customer feedbacks and comments on web platforms can be used by your organization in the process of interaction with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
L1	Long term partnership between your company and customers, will help to have many benefits for both sides.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L2	Your company maintains interactive, two-way communication with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L3	Your organization cares about long term partnership with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L4	Your organization is committed to improving products in whatever customers suggest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L5	Customers are committed when they have mutual trust with your company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L6	The clients trusted by your organization are willing to provide suggestions for their products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L7	In your organization the trust is crucial in building longer term bonding with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L8	With mutual trust and understanding, your company is able to maintain close partnerships with customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
J1	The key clients work with your organization to solve problems in product design.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J2	In your organization it's necessary for the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	exchange partners to share information relevant to the products problems.					
J3	In your organization joint problem solving will increase, the collaboration and recognition of new information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J4	Joint problem solving allows your organizations to draw on the insights, experience, and ability that firm customers have capability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J5	Joint problem solving is easier for your organization to enhance product quality and technical ability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J6	Joint problem solving will improve the learning for your organization which happens in exchange relationships.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NO	Statements	1	2	3	4	5
T1	Your organization uses a call center or computer telephone integration to deal with demands of customer, complaints, and suggestions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T2	Your organization uses a service center to deal with customer suggestions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T3	Your organization has an integrated customer relationship management (CRM) performance evaluation system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T4	Your organization uses data warehousing and data mining to save customers' information for identifying that the potential customers are more valuable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T5	Your organization, establishes perfect web-based customer interaction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T6	Your Organizations utilizes technology as a key tool for improving the flow of information in their business.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T7	Information flow will help your organization to have interactive communications with your customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T8	In your organization flow of information is regarded as a crucial element of CRM mechanism.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

T9	The capture of information in your organization can be the ability in collecting and storing the relevant information pertaining to the customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T10	In your organization capture of information is a crucial dimension in CRM systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T11	Capture of information can aid in your organization having long terms association with the customers in the long run.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T12	Usage of information is an important component of CRM systems in your company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T13	In your organization, information usage is the ability for using information pertaining to customers for developing customer profiles and target market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION D – Product innovation Variables

NO	Statements	1	2	3	4	5
P1	Your organization launches new products to the market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2	Your organization, frequently tries out new ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P3	In your organization new products, expands new markets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P4	Your organization launches customized products according to market demands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5	Your organization has developed new product lines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P6	Understanding customer needs during implementation the new products in company is important in order to have effective product innovation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7	Collaboration with external sources has become successful experience with product innovation in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

P8	Your organization is able to reduce the time to develop a new product until it is launched to the market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P9	Your organization creating innovative products that is new to your company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P10	Market needs play a crucial role in the implementation of innovations in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This part of questionnaire refers to product innovation. The items used to measure the new product of your organization. Please circle or tick, on a scale of 1 “Strongly Disagree” to 5 “Strongly Agree”, the number which best represents your degree of agreement or disagreement with the following statements.

SECTION E – Business performance Variables

This final part of questionnaire outlines the pertinent elements that represent Business performance. The items used to measure the business performance in your organization. How would you rate the level of achievement of the following business performance items in your organization in the last three years compared to the previous years? (Five-point scales ranging from 1= ‘very unsuccessful’ to 5= ‘very successful’)

NO	Statements	1	2	3	4	5
B1	In your organization, profitability of this year increased compared to last three years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B2	Product innovation increases the general profitability in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B3	Innovation increase sales by increasing product consumption and yield additional profit in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B4	Market share can increase your firm performance by achieving more sales.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B5	Product innovation increases the market share in your organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B6	In your organization, market share of your product for this year increased compared to last three year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B7	Your organization is able to managing as well as directing its volume of sales.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B8	In your organization, innovation is one of the most consistent drivers of sales volume.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B9	In your organization, sales volume of this year increased compared to last three years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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