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ABSTRACT

We are living in a time where our ability to intelligently use of knowledge decides what's to come. Knowledge management is intended to show methodology, process, and innovation to gain organizational learning and execution. It can build up the organizational advancement and innovation capability. While there is an absence of research on the relation between knowledge management and innovation in some sectors. The aim of this research study was to develop the understanding of knowledge management and innovation. Also, this study examines the relationship between the variables of knowledge management and innovation. Knowledge management is measured as a major driving feature of innovation, although knowledge management is gaining attraction in large companies. Understanding the both of knowledge management and innovation can cause of vital role for the existence and achievement of private industries.

There are 9 original factors of knowledge management and innovation was used in this research. The data was collected from an adopted questionnaire through non-probability convenient sampling technique. The respondents were selected through online survey which was targeted from employees of different private industries in Norway. Cronbach's alpha test was performed to check the reliability of all the variables. Correlation analysis was used to check the association between all independent variables and all the variables were highly positively correlated with each other. Regression analysis was conducted to predict the dependent variable through independent variables.

Therefore, this study concluded that all the independent variables of knowledge management have a significant impact on the dependent variable innovation. In this way this research recommend that management of companies should find a way to obtain the combination of factors related to knowledge management in order to improve the effectiveness of their production through innovativeness.

Keywords: knowledge management, innovation,

Contents

Chapter 1: Introduction 1

1.1. Background of the study 1

1.2. Purpose of the study 2

1.3. Research Statement 2

1.4. Organization of the study 2

Chapter 2: Literature Review 3

2.1. Knowledge 3

2.2. The Nature of Knowledge- Tacit vs. Explicit 3

2.2.1. Tacit Knowledge 4

2.2.2. Explicit Knowledge 4

2.2.3. Knowledge Assets 4

2.2.4. Knowledge Economy 5

2.2.5. System Thinking 5

2.3. Knowledge Management 5

2.3.1. Knowledge identification 6

2.3.2. Knowledge creation 6

2.3.3. Knowledge collection 6

2.3.4. Knowledge organization 7

2.3.5. Knowledge storage 7

2.3.6. Knowledge dissemination 7

2.3.7. Knowledge application 7

2.4. Innovation 7

2.4.1. Product Innovation 9

2.4.2. Process Innovation 11

2.5. Knowledge Management and Innovation 12

2.5.1. KM and Product Innovation 13

2.5.2. KM and Process Innovation 14

2.6. Conceptual Framework 16

2.7. Hypotheses 16

Chapter 3 Research Methodology 17

3.1. Research design 17

3.2. Sample Items 17

3.3. Population and sample size 17

3.4. Data Collection 17
3.5. Data Analysis 17
Chapter 4 Data Measurement and Assessment 17
4.1. Gender of Respondents 18
4.2. Qualification of Respondents 19
4.3. Designation of Respondents 20
4.4. Work experience of Respondents 21
Chapter 5 Data Analysis and Empirical Findings 22
5.1. Reliability analysis 22
5.2. Correlation Analysis 22
5.3. Regression Analysis 23
Chapter 6 Conclusion 25
6.1. Discussion 25
6.2. Conclusion 25
6.3. Limitations and Future Research 26
Bibliography 27
Appendices 39

Chapter 1: Introduction

1.1. Background of the study

Knowledge management has recently emerged as a new regulation in its own right and, given its innovation, is most likely still developing its theoretical home. Innovations arise as a result of incorporating new knowledge with presented knowledge to reconfigure organizational capabilities and competencies, resulting in value-added products. In this context, KM encompasses processes concerned with facilitating the design and acquisition of new knowledge, integrating it with an organization's existing storehouse of knowledge, sharing it and applying it in value-added outputs. As such, KM is argued to significantly improve an organization's innovation process (Cavusgil, S. Calantone, R. and Zhao, Y., 2003; Dahiyat, S.E. Al-Zu'bi, Z.M.F, 2012; Dahiyat, 2015).

Global organizations developed indices and criteria to evaluate the national competitiveness of countries. The World Economic Forum (WEF) has based its competitiveness analysis on the Global Competitiveness Index, a comprehensive instrument that measures the microeconomic and macroeconomic foundations of national competitiveness (WEF, 2014). Based on its 12 indices and adjusted with the economic theory of stages of development, the WEF defines three stages of competitiveness. According to WEF (2014) in the first stage, the economy is factor-driven and countries compete based on unskilled labor and natural resources. Companies that are giving low wages due to low productivity on the basis of commodities and basic products usually compete over price. Countries will then move into the efficiency-driven stage of development when they must begin to develop more efficient production processes and increase product quality because wages will have risen and they cannot increase prices. Finally, as countries enter the innovation-driven stage, wages can have up most that they're going to be able to sustain those higher wages and therefore the associated standard of living given that their businesses are able to compete with new and distinctive products. At this stage, corporations should compete by manufacturing new and completely different products. Several scholars are interested in study the innovation and also the factors that have an effect on that. Malaysian economy and the related organizations aim to improve their performance by increasing the innovative outputs. But according to the last published knowledge and innovation assessment report in 2005, there are substantial gaps in terms of technology adoption rates and level of innovation at the firm and industry levels as well as between large and small firms, and

domestic and foreign ones. Firms need to make the transition from being good adopters and adaptors of technology to being good innovators (EPU, 2005). However, to maneuver towards associate innovation-based economy, organizations should investigate among antecedents and forerunners of innovation within the business sector. This thesis aims to find whether companies from the second stage of development, with the basis of quality and productivity culture, are able to move towards being innovative companies based on their existing Knowledge management approach and analyzing the relationship between knowledge management and innovation.

1.2. Purpose of the study

In this competitive world there is a huge demand of creativity and innovativeness. There are many innovation methods and many researchers have studied the innovation process and techniques. Organizations use different resources for innovation, in my research I want to study one of the resources (knowledge) management.

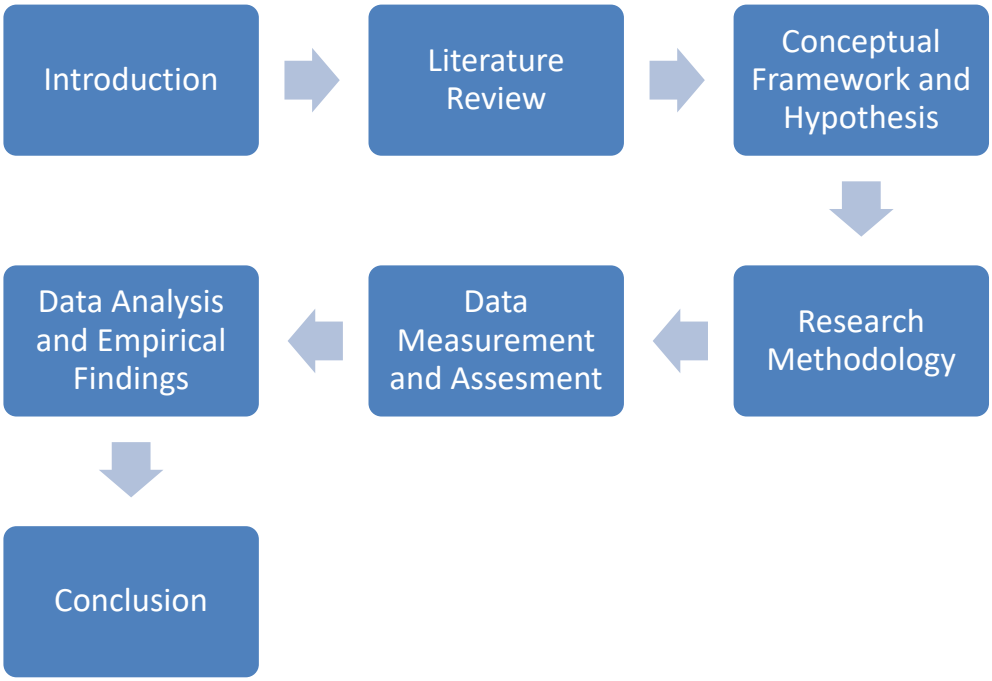
This study focuses on knowledge management (KM) relation with innovation, process and product innovation. This paper aims to clarify the role of knowledge management in process and product innovation. For that purpose, I have collected data from different private organization dealing in, process and product innovation or had been a part of the innovation phase. In my study, I am considering the positive relation of knowledge management with innovation (product and process). My study emphasizes that how implementing KM will improve or changes the activities in an innovative environment. Quantitative research method has been used for the empirical findings of this research.

1.3. Research Statement

With the above research purpose, I made a research statement which will identify the relation between two main variables Knowledge Management and Innovation (Product and Process). And answer the question about how Knowledge Management can impact the innovation in private organizations, where study will also focus on the knowledge management process.

KM has a positive relationship with Innovation (Product and Process Innovation) in an organization.

1.4. Organization of the study



The Study Structure

Chapter 2: Literature Review

2.1. Knowledge

Knowledge is `information that's relevant, actionable and based at least on experience.' Knowledge is typically gained through expertise and/or observation (Leonard, D and S Sensiper, 1998). Davenport and Prusak (1998), define that `Knowledge is a mixture of framed expertise, contextual information and skilled insight that has a framework for evaluating and incorporating information and new experiences. It originates and is applied within the minds of knowers. In organizations, it usually becomes embedded not solely in documents however conjointly in organizational routines, practices, norms and practices' (Singh, 2007). Knowledge is defined as a meaningful, action-oriented commitment, which extends the traditional 'justified true belief' (Nonaka, I., Takeuchi, H., 1995). In addition, Davenport and Prusak (1998) see knowledge as a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information.

2.2. The Nature of Knowledge- Tacit vs. Explicit

Any discussion concerning knowledge management should embody some discussion concerning the knowledge itself. Specifically, the nature of that knowledge and therefore the

context it's depicted to grasp how it'll be utilized in the fulfillment of Knowledge Management objectives.

Noted philosopher Michael Polanyi mentioned, "We can know more than we can tell". According to Polanyi, knowledge which will be expressed in words and numbers solely represents the tip of the iceberg of the whole body of attainable knowledge. Polanyi classified human knowledge into two categories:

2.2.1. Tacit Knowledge Tacit knowledge is extremely personal and onerous to formalize, creating it tough to speak of share with others. Subjective insights, intuitions, and hunches comprise this class of knowledge. It is deeply involved in an individuals' actions and skills additionally as within the ideals, values, or emotions he or she embraces. Its' personal quality makes it onerous to formalize and communicate. Japanese view knowledge as being primarily inexplicit, one thing not simply visible and describable.

There are two dimensions to tacit knowledge:

Technical dimension and cognitive dimension, the technical dimension is a kind of personal informal skills which is usually referred as ‘know-how’ whereas Cognitive dimension- consists of beliefs, ideas, values, schemata, and mental models, which are deeply ingrained in us and which we often take for granted. While difficult to articulate, this psychological feature dimension of tacit knowledge shapes the approach we tend to understand the world.

2.2.2. Explicit Knowledge Explicit knowledge is written knowledge which will be transmitted in formal, systematic language. It is discrete or 'digital'. It is captured in records of the past like libraries, archives, and databases and is assessed on a sequential basis. It may be expressed in words and numbers and shared within the sort of knowledge, scientific formulate, specifications, manuals and the like. This kind of knowledge may be promptly transmitted between people formally and consistently.

2.2.3. Knowledge Assets Knowledge assets are ‘firm-specific resources such as people’s expertise and skills, knowledge documents, lessons learned and data, that are indispensable for creating value for the firm’ Nonaka et al. (2000). Knowledge assets, therefore, develop as the evolving inputs and outputs of knowledge activities and when used by someone other than their original creator Baird and Henderson (2001) cited in (Baskerville, R. and Dupolic, A, 2006).

2.2.4. Knowledge Economy Refers to how society and economies are transforming their dependence on labor and manufacturing of products or goods to an economy that is more dependent on the production of information and knowledge. Hence, society and the economy are being transformed from a "physical-based" labor force to a "knowledge-based" one (Pullen, 2009).

2.2.5. System Thinking System is a field of study that is concerned with breaking down an entity into constituent parts in order to understand the whole, while also understanding the pattern of relationships between the parts (Jackson, 2003). It also looks at the environment in which the parts interact, as well as the feedback which is the source of the systems dynamic behavior Abou-Zeid (2008). System thinking is derived from systems theory and is the basis for the learning organization (Senge, 1990).

2.3. Knowledge Management

The systematic and explicit creation and use of knowledge to maximize knowledge-related effectiveness of an organization. It involves the capture of an organization's collective expertise wherever it resides in people's heads, or in databases, on paper and distribution of the expertise wherever it can produce the biggest returns (Beijerse, 1999).

The effective use of human data in a company isn't solely a strategic structure tool, however a vital competitive strategy for businesses (Alavi, M. and Leidner, D. E., 2001; Carneiro, 2000). Similarly, Ducker (1995) submits that knowledge could be a major structure resource and also the preponderating supply of comparative advantage. While various researchers have claimed that organizations will enhance the event and creation of recent and innovative ideas through the right management of knowledge, and by effectively managing the intellectual capitals available, acquiring knowledge, sharing it with others and implementing that knowledge in the firm on the continuity basis. (Huang, J. W. and Li, Y. H., 2009; Plessis, M., 2007; Lin, H. F. & Lee, G. G., 2005; Carneiro, A., 2000; Alavi, M. and Leidner, D. E., 2001; Beijerse, 1999; Nonaka, I. and Takeuchi, H., 1995). Hall and Adrianni (2002), defines the knowledge management as a managerial function that identifies the important data and then refining that data into the needed information, which set the base for the formulation and implementation of the decision. Knowledge management has conjointly been same to comprise organizational methods and actions to "identify, capture, share and leverage the knowledge required to survive and to compete successfully" (Pena, 2002; Hall, P. and adrianni, P, 2002; Lepak, D. P., and Snell, S. A., 1999; Lim, 1999). Similarly, Frost (2014) opines that data management is basically the identification of the proper staff at a suitable time. Proper knowledge management in an

organization may not be difficult, but without the proper policies and strategies, it may become a daunting task that may end up consuming the whole organization. Gold (2001) defines Knowledge management as "a structured coordination for managing knowledge efficiently and effectively". While Alavi and Leidner (2001) submit that it includes processes like "knowledge creation, sharing, storage, and usage". Knowledge management is concerning harnessing out there knowledge by encouraging innovative ideas that result in enhancing organizational performance. Several researchers have explicit the different dimensions of knowledge management to incorporate "identification, acquisition, codification, storage, retrieval, sharing, dissemination, and creation, the application" (Liao, S. & Wu, C., 2009; Wang, C. L., and Ahmed, P. K., 2004). Wang and Ahmad (2004) in their study on the development of a measure for knowledge management conceptualized it as comprising "knowledge system, organizational memory, knowledge sharing, a learning culture, and knowledge benchmarking". Some scholars Zahra and George (2002) dimensionalized it as "assimilation and transformation of data, skill acquisition, exploit knowledge and skill to use".

Knowledge management method is outlined as: the procedures that identify, create, and collect the required information, can organize the information and eventually manage the storage, dissemination, and application of knowledge within the organizations. Following are general definitions of the constructs.

2.3.1. Knowledge identification

Knowing the available knowledge and talent both inside and outside the organizations is very important for corporations and organizations (Probst, 1999). Knowledge identification is one in all the most aspects of knowledge management. Managers will perceive the weaknesses of their workers and try to regulate the employee's knowledge and talents with needed knowledge within the organizations by distinctive employee's knowledge (Afraze, 2005).

2.3.2. Knowledge creation

Knowledge may be created through alternative ways (O'dell, 1998). Creation and getting knowledge may be done through totally different sources like workers, customers, business partners and competitors (Lawson, 2002).

2.3.3. Knowledge collection

A person can collect intellectual capital by communicating different workers. Information collection is that the most significant practice and you'll be able to share it by knowledge donating. Knowledge sharing is additionally, a part of knowledge management. In a corporation, effective development of knowledge sharing practices can modify the behaviors

and attitudes of the workers toward the readiness to give and collect knowledge (Van den Hooff, 2004).

2.3.4. Knowledge organization

Knowledge organizing includes activities of information process to rework knowledge to a good kind (O'dell, 1998). Having the policy to review knowledge on regular basis, keeping knowledge up to date, having mechanisms for filtering, cross listening, integration completely different sources and kinds of knowledge, giving feedback to workers on their ideas and knowledge are some construct to organizing the knowledge (Lawson, 2002).

2.3.5. Knowledge storage

If organizations don't wish to lose their valuable knowledge, they need to choose a type of knowledge method for appropriate storage and preservation (Probst, 1999). Organizations have to be compelled to use databases and knowledge technology applications to store knowledge for simple access by all workers (Lawson, 2002).

2.3.6. Knowledge dissemination

Knowledge dissemination could be a means of sending knowledge to different workers who would like that knowledge within the organization (Adli, 2005). Before knowledge may be exploited at the organization levels, it's to be distributed and shared through the organization (Bhatt, 2001).

2.3.7. Knowledge application

Organizational knowledge must be employed in a company's product, processes, and services. To stay the competitive advantage, organizations have to be compelled to place the proper reasonably information within the right kind (Bhatt, 2001). In fact, knowledge application is that the final aim of knowledge management (Probst, 1999).

2.4. Innovation

Innovation is one in all the key factors distinguishing organizations from competitors in today's extremely competitive markets. Therefore, improving innovative performance is crucial for making a competitive advantage.

Innovation has long been recognized as the most important source of economic development and firms' growth (Schumpeter, 1934; Penrose, 1959). Consequently, a way to boost innovation has been of central interest to each policy manufacturers and entrepreneurs.

Innovation is often understood the successful introduction of anything new and helpful, for instance, introducing new ways, techniques, practices, or new or altered product and services. An innovation is `an idea, practice or an object that is perceived as new by an individual or

another unit of adoption', according to Rogers cited in (Steele, J and M Murray, 2004), Innovation is a prerequisite for competitive advantage. However, extant view on innovation suggests that integration of existing knowledge assets is essential for the generation of new products and technologies (Ju, TL, CY Li , TS Lee, 2006; de Weerd-Nederhof, PC, BJ Pacitti, JF de Silva Gomes, AW Pearson, 2002; Subramanium, 2006; Johnston, S, A Paladino, 2007; Mei, S , M Nei, 2007). Innovation is one of the management concepts that have a close relationship with enterprise entrepreneurship and it cannot be ruled out when defining entrepreneurship. Even if the prevailing analysis into organizational innovation has taken another route because of the variety of concerns, it should still be remembered that these two ideas have a very important historical and common history. This background goes back to the wider scope of the meaning of innovation, and this is what can be called the concept of innovation from the perspective of Schumpeter (2017). Drucker (1995) also considers innovation as a specialty for entrepreneurship. According to him, innovation is distinguished between entrepreneurial affairs and management issues. In fact, we are able to say that the construct of innovation in Schumpeter's view distinguishes entrepreneurship behavior from different managers and, as a result, make entrepreneurship and innovation indivisible. Despite these similarities, in this article, there is a distinction between these two concepts. One necessary reason is that the issue of providing a standard and accepted the definition of innovation. Gopalkrishnan and Damanpour (2001) examine the concept of innovation in a variety of scientific fields such as economics, organizational sociology, and technology management. They came to the conclusion that altogether these areas, innovation had been considered as a tool for adapting to changes and making new things.

There is no generally agreeable definition of innovation. According to the Christiania Manual (OECD, 2005), innovation is the implementation of a new organizational method in business practices, workplace organization, or external relations. Kuhn and Marisck (2005) define the innovation as a process that translates the discovery or idea into a product or service that create a value to meet the needs and satisfy the expectations of customers. Similarly, Crossan and Apaydin (2010) state that innovation is that the creation, adaptation, and utilization of a value-added, a novelty in business and manufacturing domains, renewal and expansion of good, services and markets, either way creating new ways of development and instituting new management system. For Maravelakis, Bilalis, Antoniadis, Jones, and Moustakis (2006), organizational innovations are measured based on product, process, and administrative innovations, while McGrath (2001) measured innovation using product, process and market

innovations. In this study, solely 2 constructs of innovation are used, specifically product innovation and process innovation.

Innovation permits organizations to the parallel progress of the changes flourishing in the context. It's a plan of action purpose in replying to the novel variations of a context with various doubts (Hurmelinna-Laukkanen, P., Sainio, L. M., & Jauhiainen, T, 2008). Regarding an association, the novelty would signify the creating or adopting the new thoughts or performance. Over the previous studies, the notion that innovation is important for companies' long accomplishment and survival establishing a competitive tool is extensively documented (Amabile, Conti, Coon, Lazenby, & Herron, , 1996). Innovation is known as the gap of the door to each international and international competitive advantage over rising the market with novel or exclusive products/amenities; creating entry obstacles that improve the essential capitals to enhance innovation over learning; and creating novel values that design the directions of competitive setting (Cooper, J. R, 1998). A deep investigation concerning innovation literature displays that many descriptions of innovation square measure existing from many viewpoints. Innovation conjointly outlined as; the acceptance of an enclosed created or purchased device, scheme, strategy, program, procedure, product, or pleasantness that isn't basically novel to the world however precisely novel for that acceptive association (Cooke, 2001; Marins, 2008). Extracted from the Davila et al. (2012), Innovation like several functions of the industry. The learning competencies of an association play a very important share in making innovations (Sinkula, J. M., Baker, W. E., & Noordewier, T., 1997). Innovation involves the build, support, and performance of fresh thoughts, procedures, amenities or goods. It is crystal clear that learning of association is powerfully connected with Organizational Innovation (Weerawardena, 2006).

2.4.1. Product Innovation

Product innovation is connected with both introducing new products and improving existing ones (Chang, Y. Linton, J. and Chen, M, 2012; Polder, M. Leeuwen, G. Mohnen, P. and Raymond, W, 2010). Product innovation could include changes in design which, in turn, cause important changes in the use or features of a product (OECD, 2005). The main goal of having product innovations in an organization is to enhance the value delivered by the product and achieve a higher level of efficiency (Polder, M. Leeuwen, G. Mohnen, P. and Raymond, W, 2010). In addition, product innovation can be achieved either by using new technologies and knowledge or by using new combinations of the existing technologies and knowledge (Gunday, G. Ulusoy, G. Kilic, K. and Alpkan, L, 2011).

In general, product innovation is considered to be a difficult process since it is driven by changing customer needs, advancing technologies, increasing international competition and reducing product life cycles (Gunday, G. Ulusoy, G. Kilic, K. and Alpkan, L, 2011). Product innovation is an ongoing and cross-functional process that involves and integrates an increasing number of different capabilities inside and outside the organizational limits. Product innovation provides manufacturers with the opportunity to keep their product portfolio competitive and consequently accomplish the competitive advantage they look for (Ottenbacher, M. and Harrington, R, 2009). Despite all previous benefits of product innovation, it is still a risky and expensive attempt since the results show low success rates and many projects being ended midway in the development cycle (Cormican, K. and O'Sullivan, D., 2004). In order to achieve organizational goals successfully, product innovation should have significant interactions within the organization as well as with customers and suppliers (Gunday, G. Ulusoy, G. Kilic, K. and Alpkan, L, 2011).

Scholars and practitioners alike have come back to the conclusion that organizational originality may be a strategic element of a firm's ability to succeed and be in a position contend favorably within the dynamic business environment (Wang, C. L., and Ahmed, P. K., 2004). Product innovation may be a strategic resource for contemporary businesses (Hultink, E.J., Griffin, A., Robben, H. S. J. and Hart, S., 1998; Auh, S. and Menguc, B., 2005; Vorhies, D. W. and Morgan, N. A., 2005; Jelenic, 2011). Several researchers conclude that the success and survival or failure of contemporary organizations place confidence in how innovative they're (Quinn, 2000; Nonaka, I. and Takeuchi, H., 1995). As opined by Ahmed (1998), several businesses emphasize the importance of rising their innovative ability, numerous try and accomplish it, however, solely some may truly accomplish it. Product innovation has been noted to facilitate the accomplishment of organization's objectives because it facilitates within the transformation of ideas into new, better quality products, and services through enhanced processes (Baregheh, A., Rowley, J. and Sambrook, S., 2009). Product innovativeness helps in characteristic a firm's product from that of its contemporaries. Notable researchers have found out that proven fact that for a firm that can't manage the value of products in its sector, the succumb lies in the making of innovative product (Palas, F. et al, 2013; Baregheh, A., Rowley, J. and Sambrook, S., 2009) Product innovativeness has been of great interest to each managers and researchers, because it may be an essential factor in predicting product success (Calantone, R. J., Chan, K., & Cui, A. S., 2006; Sethi, 2001; Zirger, 1997) . In a relative study by Henard and Szymanski (2001) it had been showed to be influential in sustaining structure success. According to Danneels and Kleinschmidt (2001), innovative products bring the new opportunities for the

growth and expansion of businesses, as it opens the new venture and horizons and achieving the competitive edge among its competitors. Henard and Szymanski (2001) submitted that product innovativeness is most times known as "perceived newness, novelty, originality, or uniqueness of products", while Atuahene-Gima (1995) suggested that, it is made up of consumers and firm's perspectives. That is a firm that ceaselessly attempts to innovate its product should think about the preference of the customers in planning it product therefore as to retain the loyalty from them. Andrews and Smith (1996) explained that the propensity to that a product is helpful to the end user is determinant of product innovativeness and that products should be rated based on its usefulness to the consumer. Wang and Ahmed (2004) outline product innovation as "the novelty and significance of the latest products introduced to the market at a timely fashion". In this study, the main focus is to analyze the relationship between product innovation and knowledge management.

2.4.2. Process Innovation

Process innovation has gained a lot of importance recently (Trott, P. and Hartmann, D., 2009; Van De Vrande, V. Vanhaverbeke, W. and Gassmann, O., 2010; Lichtenthaler, 2011). It is outlined because the application of a replacement or improved production or delivery ways that incorporates vital changes in techniques, equipment, and software (OECD, 2005). Process innovation enhances the efficiency and productivity of production activities increases quality and reduces the unit cost of production (Abdallah, 2007).

Process innovation involves either improvements in the production and logistic methods or improvements that include several activities such as accounting, computing, purchasing and maintenance (Polder, M. Leeuwen, G. Mohnen, P. and Raymond, W., 2010). Organizations that use process innovation aim at producing innovative products and new products as well (Hassan et al., 2013). This may require the adoption of new methods which have never been used before (Polder, M. Leeuwen, G. Mohnen, P. and Raymond, W, 2010).

Damanpour (1991)pointed to two main stages of process innovation which included initiation and implementation. He declared that the initiation stage involves what's known as "openness to the innovation" that is decided by the temperament of organizational members to adopt or resist innovation. Recent literature re-emphasized the importance of method innovation stages and reconfigured them (Lendel, V. Hittmár, S. and Siantová, E., 2015). The first stage focus on the identification of customer needs and opportunities for innovation, searching new idea and

formalizing, generation and diffusion of that idea (Hansen, M. and Birkinshaw, J., 2007; Laursen, K. and Salter, A., 2006; Bernstein, B. and Singh, P., 2006).

2.5. Knowledge Management and Innovation

Ben Zaied (2015) and Damanpour (2009) associated knowledge resources to innovation and argued that these resources determine the capacity of the firm to innovate. Similarly, Wilson (2007) stated that innovation is the transformation of knowledge into new products, practices, and processes and services. Hence, the influence of KM through acquisition, sharing, and application of innovation are acknowledged in the cited literature. To be specific, knowledge acquisition is that the method of getting knowledge that's accessible somewhere and it refers to the utilization of existing knowledge or capturing new knowledge (Lin, H. F. & Lee, G. G., 2005). Internally, the corporate will acquire knowledge using specific knowledge from existing documents or the implied knowledge of its individuals into its repositories. Externally, Wong and Aspinwall (2004) argue that a business will acquire knowledge by using people with the desired knowledge and by buying knowledge assets, like patents and research documents. Besides, an in-depth relationship with customers might permit business managers to own an immediate and quicker knowledge flow and this might facilitate them to enhance their ability to capture the customers' data, competitors' actions and behavior, market trends, and other developments (Wong, K. Y., Aspinwall, E., 2004). It is necessary to emphasise that once there's the acquisition of latest knowledge among the corporate, the capacity of the employees' increases and they become more able to transform the new knowledge and generate the new ideas (Chen, 2009). Consequently, the stocks of knowledge increase and the business take advantage of new opportunities by applying and exploiting acquired knowledge to produce innovative results (Huang, J. W. and Li, Y. H., 2009). Scholars confirmed the link between knowledge acquisition and innovation. For instance, Zhang, Shu, Jiang, and Malter (2010) found that the information acquired from alliance partners affects knowledge creation of the organization, which in turn leads to innovations. Tan and Nasurdin (2010) confirmed a positive and vital relationship between knowledge acquisition and technological innovation (process and product innovation). Mafabi et al. (2012) study additionally discovered a positive and significant relationship between knowledge acquisition and structure innovation. It is declared that knowledge sharing is that the exchange of information, experiences, and skills across the whole organization (Lin, 2007). Members of the organization share and exchange knowledge, prompting their level of participation to increase. This contributes to the development of innovative ideas (Chen, 2009). Thus, a positive association is assumed between knowledge

sharing and innovation. Lastly, knowledge application (responsiveness to knowledge) is extremely necessary. It is the utilization of acquired knowledge to make useful decisions regarding business (Alavi, M., Tiwana, A, 2002). Therefore, knowledge application can stimulate innovative activities. Factual evidence adduced from many studies have found a positive and significant relationship between knowledge management and innovation. According to Xu, Houssin, Caillaud, and Gardoni (2010) the way businesses managed the knowledge determines the innovation success in businesses. Further, Amalia and Nugroho (2011) confirmed that effective KM process through knowledge creation, storage, distribution, and application contributes to innovation in the firm. Whereas, Tan and Nasurdin (2010) additionally as Mhosen & Khadem's (2010) studies discovered a positive relationship between the effectiveness of acquisition, sharing and application of knowledge and product innovation. Available data obtained from some empirical studies have examined the above-mentioned associations in the SMEs. For instance, Alegre, Sengupta, and Lapiedra (2011) found a positive and significant relationship between KM and innovations in high-technology SMEs industry. This was supported by the study of worth, Stoica, and Boncella (2013) who revealed that KM process supports innovation in SMEs. KM is among the invasive area of management analysis that has been the scope of various studies. A number of academic studies have identified a positive relationship between KM and innovation (Liao, S. & Wu, C., 2009). Johnston and Paladino (2007) found that the use of KM techniques is a primary activity in their surveyed firms. It was reported that a significant association between the use of KM techniques and involvement in innovations existed. However, some studies also found evidence pointing towards mixed innovation accrued from KM processes. Furthermore, a soft approach or 'humanist approaches to KM' have a significant association and positive correlation with innovation performance.

2.5.1. KM and Product Innovation

The relationships between these 2 variables are studied by many scholars (Palas, 2013; Bidmeshgipour, 2012; Kor, B. and Maden, C., 2013). The relation of knowledge management and innovation has anticipated and well documented (Darroch, J. and McNaughton, R., 2002), however from different economies this issue is distinctive that how it is managed, disseminated and generated. (OECD, 1996; DETYA, 1999), Knowledge management was additionally said to increased innovation through acquisition, conversion and application of new ideas and harnessing organization's knowledge power for newer and more quality products (Huang, J. W. and Li, Y. H., 2009; Plessis, 2007; Lin, H. F. & Lee, G. G., 2005; Argote, L., McEvily, B. and

Reagans, R., 2003; Darroch, J. and McNaughton, R., 2002) Knowledge management has been recognized as s strategic managerial tool that helps within the creation and dissemination of latest and innovative concepts (Jelenic, 2011; Lepak, D. P., and Snell, S. A., 1999). A manager that intends to lead his subordinates to achieve success must find a way to harness the intangible assets imbibed in his employees. The effective utilization of accessible intellectual asset inside a firm was said to boost the choice creating method within the firm, it also helps improve the level of efficiency in business activities, that encourage the involvement of employees that leads to ultimate commitment (Jelenic, 2011). Not solely have scholars mentioned concerning the advantages organizations stand to derive from the right management of knowledge available in their companies. Practitioners, in addition, are now showing serious concern on knowledge management as a critical factor of competitive products (Hall, 2006; Tippins, M. J., and Sohi, R. S., 2003; Conner, K. R. and Prahalad, C. K., 1996; Davenport, TH and L Prusak, 1998). A study of Service and hi-tech companies conducted in Turkey by Kör and Maden (2013) disclosed that data management considerably aids the adoption and implementation of innovativeness concepts that lead to innovativeness in production. In a knowledge-based economy, innovation has been noted to be a key issue enhancing competitive advantage and economic process (Beesley, L. G. A. and Cooper, C., 2008). But product innovativeness was said to be inspired through the right management of tacit knowledge (Nonaka, I., Takeuchi, H., 1995). In businesses, the prioritizing of knowledge management ends up in flourishing product innovation (Darroch, J. and McNaughton, R., 2002; Carneiro, 2000).

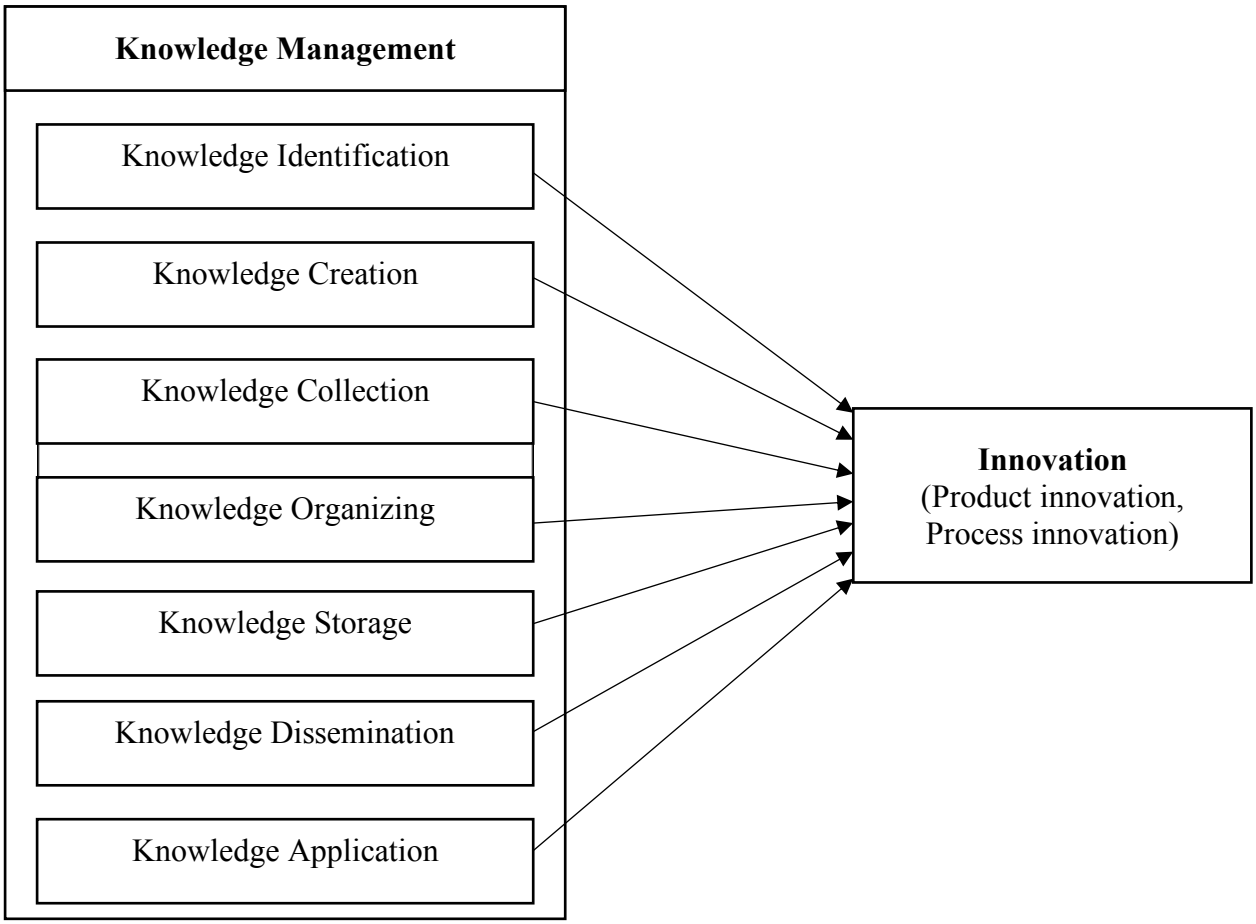
2.5.2. KM and Process Innovation

Knowledge capability provides organizations with the flexibility to style economical and innovative processes that contribute to increasing flexibility, quality, and delivery and reducing cost. Process innovation affects operational performance by increasing production processes and production potency (Damanpour, F. and Gopalakrishnan, S., 2001). Moreover, from a resource-based view (RBV) (Wernerfelt, 1984), process innovation provides organizations with a competitive advantage that can't be easily imitated if the knowledge on that this innovation relies on is exclusive. Schiuma and Carlucci (2008) indicated that knowledge management allows firms to ascertain capacity to innovate and, consequently, to boost operational and structure performance by process innovation.

Today's dynamic markets force makers to continually improve their flexibility and responses to customers. Those competencies need effective knowledge management that facilitates the transformation of organizational resources into capabilities and organizational competencies in

terms of improved process (Darroch, 2005; Chang, S. and Ahn, J., 2005). Knowledge management results in increased innovation and creative thinking in processes, which, in turn, leads to improved operational performance. Increased process innovation contributes to an operational performance by reducing production costs, improving productivity and potency of the plant (Fritsche, M. and Meschede, M., 2001; Ofek, E. and Sarvary, M., 2001). Knowledge management leads to improved product quality, increased technological enhancements and therefore the creation of an innovative process with higher performance (Chang, S. and Ahn, J., 2005). what is more, effective knowledge management indirectly affects operational performance through product and process innovations by facultative producing firms to think about value-adding activities counting on the innovation sort, whether or not it's involved with product or processes (Inkinen, 2015). Naghavi (2012) using a sample of Iranian public sector organizations found that knowledge management positively affected process innovation and organizational innovation. Mafabi (2012) investigated the impact of knowledge management on innovation and process flexibility in Ugandan parastatal organizations. They found that knowledge management considerably affected innovation and insignificantly affected flexibility. From the literature conceptual framework has been developed.

2.6. Conceptual Framework



2.7. Hypotheses

H1: Knowledge identification has positively effect on innovation.

H2: Knowledge creation has positively effect on innovation.

H3: Knowledge collection has positively effect on innovation.

H4: Knowledge organizing has positively effect on innovation.

H5: Knowledge storage has positively effect on innovation.

H6: Knowledge dissemination has positively effect on innovation.

H7: Knowledge application has positively effect on innovation.

Chapter 3 Research Methodology

3.1. Research design

Research design is a structure of research in which identify the research methods and planning the procedures for researcher to collect their data and analysis. Research design guides how research should be conducted. In this research a quantitative descriptive research was used, which was formal, structured and based on good samples size.

3.2. Sample Items

There were seven items of independent variable, knowledge identification, knowledge creation, knowledge collection, knowledge organizing, knowledge storage, knowledge dissemination and knowledge application. There were two items of dependent variable, product innovation, process innovation

3.3. Population and sample size

In this research the population was the employees of private sector industries in Norway. The sample elements were selected by using convenience sampling technique. And the sample size was 190 according to rule of thumb by (Roscoe, 1975).

3.4. Data Collection

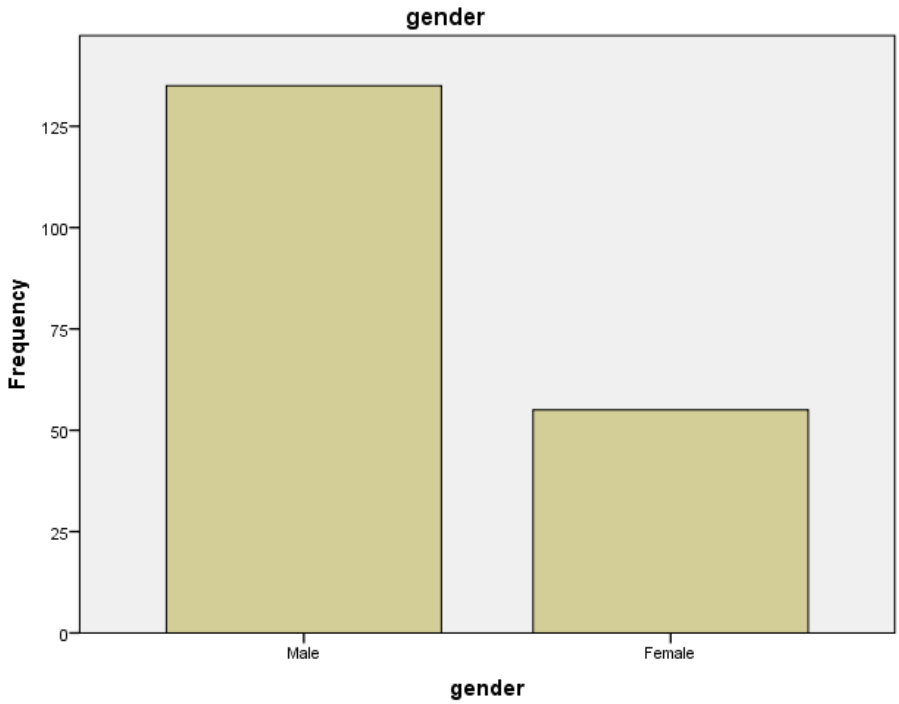
Data was collected through online survey technique, by using social media through a structured questionnaire of seven-point Likert scale.

3.5. Data Analysis

For analysis of collected data IBM SPSS software was used. In demographic analysis, personal information of respondents was checked through histogram. Reliability of variables was checked through Cronbach's alpha test. To find out the relationship between different variables correlation and regression analysis were performed.

Chapter 4 Data Measurement and Assessment

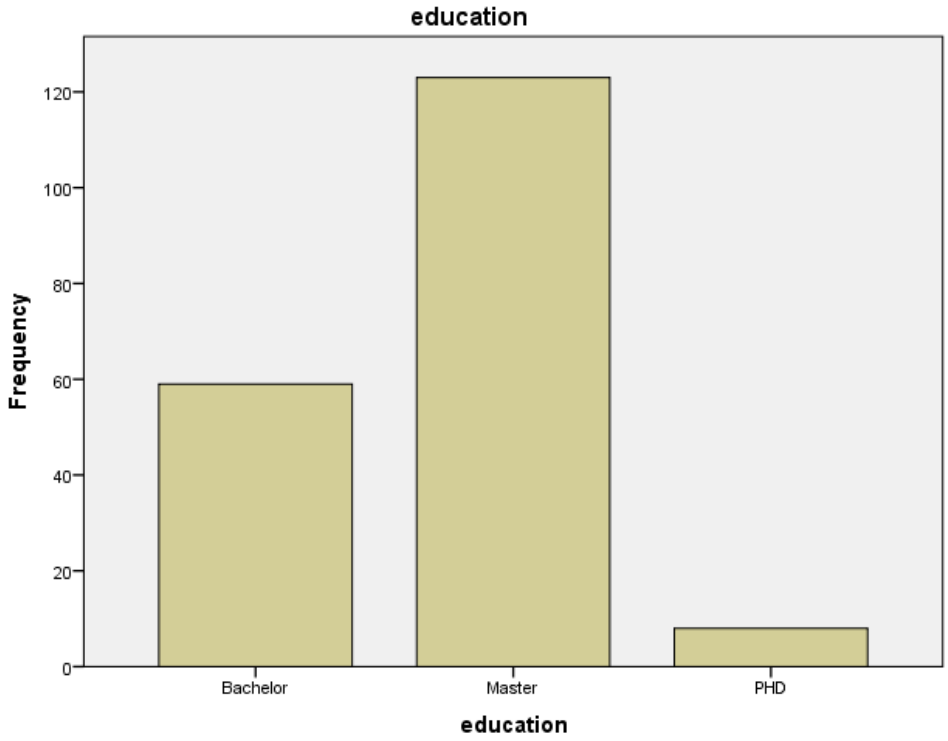
4.1. Gender of Respondents



According to the blow table there are total 190 respondents in which 135 (71.1%) are males and 55(28.9%) are female's respondents.

	Frequency	Percent
Male	135	71.1
Female	55	28.9
Total	190	100.0

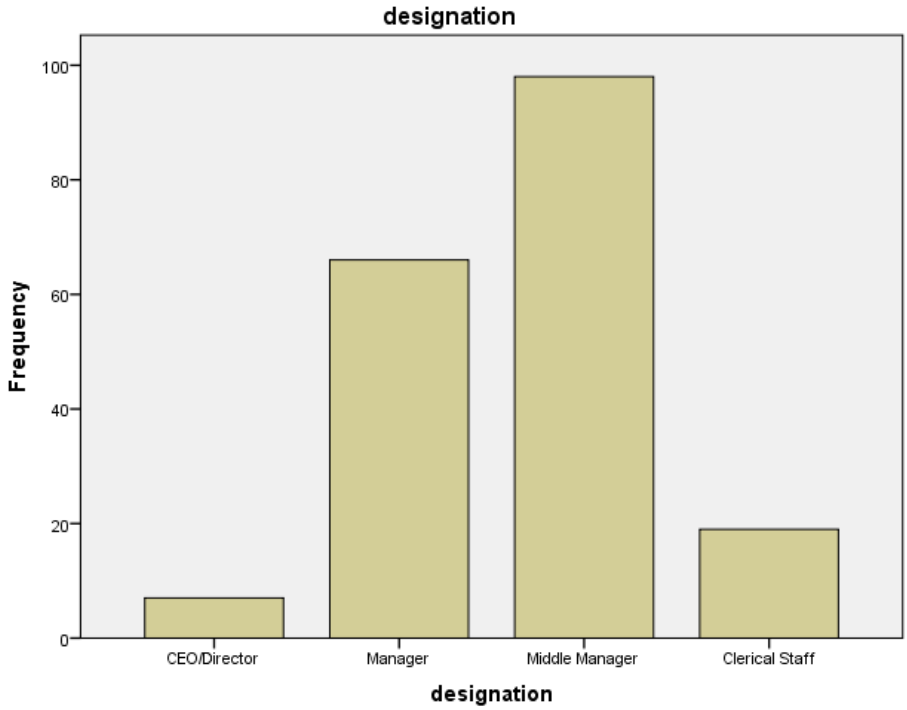
4.2. Qualification of Respondents



According to the blow table there are total 190 respondents in which 59 (31.1%) are bachelor, 123 (64.7%) are masters and 8 (4.2%) are PHD degree holders.

	Frequency	Percent
Bachelor	59	31.1
Master	123	64.7
PHD	8	4.2
Total	190	100.0

4.3. Designation of Respondents



According to the blow table there are total 190 respondents in which CEO/Director are 7 (3.7%), Managers are 66 (34.7%), middle managers are 98 (51.6%) and clerical staff are 19 (10%) of total population.

	Frequency	Percent
CEO/Director	7	3.7
Manager	66	34.7
Middle Manager	98	51.6
Clerical Staff	19	10.0
Total	190	100.0

4.4. Work experience of Respondents

According to the blow table there are total 190 respondents in which work experience of less then 2 years are 25 (13.2%), 2 to 5 years of experience are 89 (46.8%), 6 to 10 years of experience are 38 (20%) and more then 10 years of experience are 38 (20%) of total population.

	Frequency	Percent
less than 2	25	13.2
2 to 5 years	89	46.8
6 to 10 years	38	20.0
more then 10	38	20.0
Total	190	100.0

Chapter 5 Data Analysis and Empirical Findings

5.1. Reliability analysis

Reliability analysis is one of the most important analysis to evaluate the dependability and consistency of variable. It is very important because if you are not measuring a variable consistently and accurately you cannot get your results accurately.

Table
Cronbach's Alpha

Variables	No. of items	Cronbach's Alpha
Knowledge Identification	4	.856
Knowledge Creation	4	.849
Knowledge Collection	4	.850
Knowledge Organizing	4	.902
Knowledge Storage	4	.881
Knowledge Dissemination	4	.832
Knowledge Application	4	.869
Product innovation	5	.917
Process innovation	5	.934

Internal consistency of each factor was measured by using Cronbach's Alpha in above table. In which shows the values of all the variables. The value of Cronbach's Alpha for the factor knowledge identification is found .856 for 4 items. The value of Cronbach's Alpha for the factor knowledge creation is found .849 for 4 items. The value of Cronbach's Alpha for the factor knowledge collection is found .850 for 4 items. The value of Cronbach's Alpha for the factor knowledge organizing is found .902 for 4 items. The value of Cronbach's Alpha for the factor knowledge storage is found .881 for 4 items. The value of Cronbach's Alpha for the factor knowledge dissemination is found .832 for 4 items. The value of Cronbach's Alpha for the factor knowledge application is found .869 for 4 items. The value of Cronbach's Alpha for the factor product innovation is found .917for 5 items. And the value of Cronbach's Alpha for the factor process innovation is found .934 for 5 items.

5.2. Correlation Analysis

Table
Correlations

		Knowledge Identification	Knowledge Creation	Knowledge Collection	Knowledge Organizing	Knowledge Storage	Knowledge Dissemination	Knowledge Application
Knowledge Identification	Pearson Correlation	1						
	Sig. (2-tailed)							
Knowledge Creation	Pearson Correlation	.802**	1					
	Sig. (2-tailed)	.000						
Knowledge Collection	Pearson Correlation	.786**	.882**	1				
	Sig. (2-tailed)	.000	.000					
Knowledge Organizing	Pearson Correlation	.637**	.760**	.851**	1			
	Sig. (2-tailed)	.000	.000	.000				
Knowledge Storage	Pearson Correlation	.726**	.749**	.813**	.831**	1		
	Sig. (2-tailed)	.000	.000	.000	.000			
Knowledge Dissemination	Pearson Correlation	.715**	.765**	.803**	.796**	.833**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
Knowledge Application	Pearson Correlation	.726**	.726**	.818**	.813**	.850**	.894**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	190	190	190	190	190	190	190

**. Correlation is significant at the 0.01 level (2-tailed).

The coefficient of correlation is to check the relationship, strength and direction of variables in entire population. It is denoted with "r" and it tells how much our independent variables are related with each other. In above table of correlation all independent variables are highly correlated with each other and the p-value is .000 which is significant. The number of respondents is 190 which is denoted with N=190.

5.3. Regression Analysis

Regression analysis was conducted to predict the dependent variable through independent variables. It also tells how much the dependent variable will change by changing one unit of independent variable. It is also used to test hypothesis to determine the existence of significant relationship between X and Y by testing β (slope of population) is equal to zero. The regression was applied to test the hypotheses of our study whether the hypotheses developed in this study are accepted. The value of significant in all variables were lesser than 0.05 so all the hypotheses are accepted. If value increase from then 0.05 then hypotheses can be rejected.

Table
Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients			
Hypotheses	**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**Decision**
H_1: Knowledge identification has positively effect on innovation.	.512	.061	.521	8.377	.000	Accepted
H_2: Knowledge creation has positively effect on innovation.	.538	.055	.582	9.809	.000	Accepted
H_3: Knowledge collection has positively effect on innovation.	.613	.059	.607	10.460	.000	Accepted
H_4: Knowledge organizing has positively effect on innovation.	.522	.052	.587	9.943	.000	Accepted
H_5: Knowledge storage has positively effect on innovation.	.558	0.56	.588	9.958	.000	Accepted
H_6: Knowledge dissemination has positively effect on innovation.	.624	.047	.697	13.326	.000	Accepted
H_7: Knowledge application has positively effect on innovation.	.620	.050	.668	12.301	.000	Accepted
a. Dependent Variable: **Innovation**						

Above Table shows the results of regression analysis, which are:

There is a significant positive effect of Knowledge identification on Innovation as p-value = .000 < 0.5. Thus, Hypothesis 1 is supported.

There is an insignificant effect of Knowledge creation on Innovation as p-value = .000 < 0.5. Thus, Hypothesis 2 is supported.

There is a significant positive effect of Knowledge collection Innovation as p-value = .000 < 0.5. Thus, Hypothesis 3 is supported.

There is a significant positive effect of Knowledge organizing on Innovation as p-value = .000 < 0.5. Thus, Hypothesis 4 is supported.

There is a significant positive effect of Knowledge storage on Innovation as p-value = .000 < 0.5. Thus, Hypothesis 5 is supported.

There is a significant positive effect of Knowledge dissemination on Innovation as p-value = .000 < 0.5. Thus, Hypothesis 6 is supported.

There is a significant positive effect of Knowledge application on Innovation as p-value = .000 < 0.5. Thus, Hypothesis 7 is supported.

Chapter 6 Conclusion

6.1. Discussion

This study was carried out to check the impact of knowledge management on innovation in private sector industries of Norway. the results of correlation show that independent variables are highly correlated with each other. The results of regression analysis show all the hypotheses are well supported and they have positively effect on innovation. The findings of this research clearly approve and support this statement that after this research it is suggested that knowledge management can increase the abilities to make and apply various learning goal lines to grow new and progressive process and administration advancements. The results of this research answer the question that knowledge management and its dimensions have a positive effect on innovation. The businesses who intensively apply knowledge management in their setups have shown significant increase in their innovation processes. Knowledge management basically create complementary linkage between the organizations resources and they have ability to enhance these knowledge resources. So, the more use of knowledge management in an organization, this cause of strong internal based knowledge for the company. The strong internal based knowledge the greater its abilities to grip and enhance the new knowledge and change into innovative performance.

6.2. Conclusion

The purpose of this research study was to shed more light of knowledge management on the management of private sector industries. Now it is very easy to understand that knowledge management plays an important role in innovation. In this research study it is concluded that the companies who considered knowledge management in their preference may improve organizational performance and organizational innovativeness. It is very important for both knowledge management and innovation managers to understand the association between these concepts and that importance is able to create sustainability and competitive advantages for organizations. There are different other possible things in this study that play an important role to knowledge management in private industries and it could lead innovation to success.

So, managers should rethink and set their priorities towards knowledge management set their focus areas and strategies. Innovation is a focused market advantage that is significant to their survival and achievement, and this is firmly connected to knowledge management, impacted by key empowering agents, managers trusts that the effect of knowledge management and innovation empower the decision makers in taking knowledgeable decisions.

6.3. Limitations and Future Research

The objectives of this research study have been done. The association between knowledge management and innovation is successfully measured. But it is required to mention the quality indicators and research limitations of this study. Further research may test by using samples from other countries or other type of organizations. Researchers can also, add the moderator role of personal characteristics such as age, level of education, working experiences and organizational characteristics such as firm size SME size, region or other type of industry.

Bibliography

Abdallah, A. a. (2007). The relationship between just-in-time production and human resource managment , and their impact on competitive performance. *Yokohama Business Review*, 27-57.

Abou-Zeid, E. S. (2008). Knowledge Management and Business strategies: theoretical frameworks and empirical research. *Hershey.*

Adli, F. (2005). Knowledge Management: Tranaction to Past Knowledge. .

Afraze, A. (2005). Knowledge Management (Concepts, Models, Measuring and implementing). .

Ahmed, P. (1998). Culture and climate for innovation. *European Journal of Innovation Management*, 30–43.

Alavi, M. and Leidner, D. E. (2001). Review: KM and KM Systems: Conceptual Foundations and Research Issues. *MIS Quarterly*, 107- 136.

Alavi, M. and Leidner, D. E. (2001). Review: KM and KM Systems: Conceptual Foundations and Research Issues. *MIS Quarterly*, 107- 136.

Alavi, M., Tiwana, A. (2002). Knowledge integration in virtual teams: The potential role of KMS. . *Journal of the American Society for Information Science and Technology,*, 1029–1037.

Alegre, J., Sengupta, K., Lapiedra, R. (2011). Knowledge management and innovation performance in a high-tech SMEs industry. *International Small Business Journal,*, 454–470.

Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Knowledge processes, knowledge-intensity and innovation: a moderated mediation analysis. *Journal Of Knowledge Management*, 1016-1034.

Amalia, M. N. (2011). An innovation perspective of knowledge management in a multinational subsidiary. *Journal of Knowledge Management,*, 71–87.

Andrews, J., & Smith, D. C. (1996). In search of the marketing imagination: Factors affecting the creativity of marketing programs for mature products. *Journal of Marketing Research*, 174-187.

Apaydin, M. M. (2010). A Multi-Dimensional Framework of Organizational Innovation: A Systematic Review of the Literature. *Journal of Management Studies*.

Argote, L., McEvily, B. and Reagans, R. (2003). Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management science*, 571 582.

Atuahene-Gima, K. (1995). An exploratory analysis of the impact of market orientation on new product performance: A contingency approach,. *Journal of Product Innovation Management*, 275-293.

Auh, S. and Menguc, B. (2005). Top management team diversity and innovativeness: The moderating role of interfunctional coordination. *Industrial Marketing Management*, 249–261.

Baird, L. and Henderson, J.C. (2001). How to create fast cycles of knowledge to performance and performance to knowledge. *San Francisco: Berret-Koehler*.

Baregheh, A., Rowley, J. and Sambrook, S. (2009). Towards a multidisciplinary definition of Innovation. *Management Decision*, 1323-1339.

Baskerville, R. and Dupolic, A. (2006). The theoretical foundations of knowledge management. *Knowledge Management Research & Practice*, 83–105.

Battacherjee, A. (2012). Social science research: principles, methods, and practices. *Florida: University of Florida*.

Battaglia, M. P. (2011). Non-probability Sampling. Encyclopedia of Survey Research Methods. *SAGE Publications*.

Beesley, L. G. A. and Cooper, C. (2008). Defining knowledge management (KM) activities: towards consensus. *Journal of Knowledge Management*, 48-62.

Beijerse, R. P. (1999). Questions in knowledge management: defining and conceptualizing a phenomenon. *Journal of Knowledge Management*, 94-110.

Ben Zaied, R. M., Louati, H., & Affes, H. (2015). The relationship between organizational innovations, internal sources of knowledge and organizational performance. *International Journal of Managing Value and Supply Chains,*, 53–67.

Bernstein, B. and Singh, P. (2006). An integrated innovation process model based on practices of Australian biotechnology firms. *Technovation,*, 561-572.

Bhatt, G. D. (2001). Knowledge Management in Organozations: Examining the Interaction Between Technologeis, Techniques, and People. . *Journal of Knowledge Management*, 68-75.

Bidmeshgipour, M. e. (2012). Knowledge management and organizational innovativeness in Iranian banking industry, Knowledge Management and E-Learning:. *An International Journal*, 481-499.

Calantone, R. J., Chan, K., & Cui, A. S. (2006). Decomposing product innovativeness and its effects on new product success. *Journal of Product Innovation Mgt,*, 408 421.

Carneiro, A. (2000). How does knowledge management influence innovation and competitiveness. *Journal of knowledge management*, 87-98.

Carneiro, A. (2000). How does knowledge management influence innovation and competitiveness. *Journal of knowledge management*, 87-98.

Chang, S. and Ahn, J. (2005). “Product and process knowledge in the performance-oriented knowledge management approach”. *Journal of Knowledge Management*, 114-132.

Chang, Y. Linton, J. and Chen, M. (2012). Service regime: an empirical analysis of innovation patterns in service firms. *Technological Forecasting and Social Change*, 1569-1582.

Chen, C. J. (2009). Strategic human resource role of knowledge management capacity. *Journal of Business research.*, 104–114.

Conner, K. R. and Prahalad, C. K. (1996). A resource-based theory of the firm: Knowledge versus opportunism. *Organization science*, 477-501.

Cooke, P. (2001). Regional innovation systems, clusters, and the knowledge economy. *Industrial and corporate change*, 945-974.

Cooper, J. R. (1998). A multidimensional approach to the adoption of innovation. *Management Decision*, 493-502.

Cormican, K. and O'Sullivan, D. (2004). Auditing best practice for effective product innovation managment. *Technovation*, 819-829.

Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 555-590.

Damanpour, F. and Gopalakrishnan, S. (2001). "The dynamics of the adoption of product and process innovations in organizations". *Journal of Management Studies*, 45-65.

Damanpour, F., Walker, R. M., & Avellaneda, C. N. (2009). Combinative effects of innovation types and organizational performance: A longitudinal study of service organizations. *Journal of Management Studies*, 650–675.

Danneels, E. and Kleinschmidt, E. J. (2001). Product Innovativeness from the Firm's Perspective: Its Dimensions and Their Relation with Project Selection and Performance. *Journal of Product Innovation managment*, 357-373.

Darroch, J. (2005). "Knowledge management, innovation and firm performance", . *Journal of Knowledge Management* , 101-115.

Darroch, J. and McNaughton, R. (2002). Examining the link between knowledge management practices and types of innovation. *Journal of intellectual capital*, 210-222.

Davenport, TH and L Prusak. (1998). Working Knowledge: How organizations manage what they know. *Harvard University Press.*

Davila, T., Epstein, M. and Shelton, R. (2012). Making innovation work: How to manage it, measures it, and profit from it. *FT Press*.

de Weerd-Nederhof, PC, BJ Pacitti, JF de Silva Gomes, AW Pearson. (2002). Tools for improvement of organizational learning processes in innovation. *Journal of Workplace Learning,*, 320-331.

DETYA. (1999). Knowledge and Innovation: A Policy Statement on Research and Research Training, Department of Education, Training and Youth Affairs,. *Canberra*.

Drucker, P. (1995). Managing in a Time of Great Change. Truman Talley, . *New York* .

E. Maravelakis, N. B. (2006). Measuring and benchmarking the innovativeness of SMEs: A three-dimensional fuzzy logic approach. *Production Planning and Control*.

EPU. (2005). *Economic Policy Uncertainity.*

Fritsche, M. and Meschede, M. (2001). "Product innovation, process innovation, and size". *Review of Industrial Organization*, 325-350.

Frost, A. (2014). A Synthesis of Knowledge Management Failure Factors,.

Gold A.H., Malhorta A. and Segars, A.H. (2001). Knowledge Management: An Organizational Capabilities Perspective,. *Journal of Management Information Systems*, 185-214.

Gunday, G. Ulusoy, G. Kilic, K. and Alpkan, L. (2011). Effects of innovation types on firm performance. *Int. J. Production Economics,*, 662-676.

Hall, P. and adrianni, P. (2002). Managing knowledge for innovation. . *Long Range Planning*, 29-48.

Hall, R. (2006). A framework linking intangible resources and capabilities to sustainable competitive advantage. *Strategic management journal*, 607-618.

Hansen, M. and Birkinshaw, J. (2007). The Innovation Value Chain. *Harvard Business Review,*, 121-130.

Henard, D. H. & Szymanski, D. M. (2001). Why some new products are more successful than others. *Journal of Marketing Research*, 362-375.

Huang, J. W. and Li, Y. H. (2009). The mediating effect of knowledge management on social interaction and innovation performance. *International Journal of Manpower*, 285 301.

Huang, J. W. and Li, Y. H. (2009). The mediating effect of knowledge management on social interaction and innovation performance. *International Journal of Manpower*, 285 301.

Hultink, E.J., Griffin, A., Robben, H. S. J. and Hart, S. (1998). In search of generic launch strategies for new products. *International Journal of Research in Marketing*, 269 285.

Hurmelinna-Laukkanen, P., Sainio, L. M., & Jauhiainen, T. (2008). Appropriability regime for radical and incremental innovation. *R&d Management*, 278-289.

Inkinen, H. K. (2015). Inkinen, H.T., Kianto, A. and Vanhala, M. “Knowledge management practices and innovation performance in Finland”. *Baltic Journal of Management* , 432-455.

Jackson, C. (2003). Systems Thinking: Creative Holism for Managers. *West Sussex: John Wiley & Sons.*

Jeffrey S Kuhn, V. M. (2005). Action learning for strategic innovation in mature organizations: Key cognitive, design and contextual considerations. *Action Learning Research and Practice*.

Jelenic, D. (2011). The importance of knowledge management in organizations – with emphasis on the balanced scorecard learning and growth perspective. *Management, Knowledge and Learning International Conference*, 33-43.

Jelenic, D. (2011). The importance of knowledge management in organizations – with emphasis on the balanced scorecard learning and growth perspective. *Management, Knowledge and Learning International conference*, 33-43.

Johnston, S, A Paladino. (2007). Knowledge management and involvement in innovations in MNC subsidiaries. *Management International Review,*, 281-302.

Ju, TL, CY Li , TS Lee. (2006). A contingency model for knowledge management capability and innovation. *Industrial Management and Data Systems*, 855-877.

Kor, B. and Maden, C. (2013). The Relationship between Knowledge Management and Innovation in Turkish Service and High-Tech Firms,. *International Journal of Business and Social Science*, 293-304.

Laursen, K. and Salter, A. (2006). Open for innovation: the role of openness in explaining innovation performance among U.K. manufacturing firms. *Strategic Management Journal,*, 131-150.

Lawson, S. (2002). knowledge management assessment instrument. . *Nova Southeastern University.*

Lendel, V. Hittmár, S. and Siantová, E. (2015). Management of Innovation Processes in Company . *Procedia Economics and Finance*, 861–866.

Leonard, D and S Sensiper. (1998). The role of tacit knowledge in group innovation. *California Management review*, 112-132.

Lepak, D. P., and Snell, S. A. (1999). The human resource architecture: Towards a theory of human capital allocation and development. *Academy of Management Review,*, 31-48.

Liao, S. & Wu, C. (2009). The Relationship among Knowledge Management, Organizational Learning, and Organizational Performance. *International Journal of Business and Management*, 64-76.

Lichtenthaler, U. (2011). Open Innovation: Past Research, Current Debates and Future Directions. *Academy of Management Perspective*, 75-93.

Lim, K. K. (1999). Managing for quality through knowledge management. *Total Quality Management*, 615-621.

Lin, H. F. & Lee, G. G. (2005). Impact of organizational learning and knowledge management factors on e business adoption. *Management Decision*, 171-188.

Lin, H. F. (2007). Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower*, 315–332.

Mafabi, S. M. (2012). Knowledge management and organisational resilience: Organisational innovation as a mediator in Uganda parastatals. *Journal of Strategy and Management*, 57-80.

Marins, L. M. (2008). The challenge of measuring innovation in emerging economies' firms: A proposal of a new set of indicators on innovation. *United Nations University, Maastricht Economic and social Research and training center on innovation and Tchnology.*

McGrath, R. D. (2001). Exploratory Learning, Innovative Capacity, and Managerial Oversight. *The Academy of Management Journal* .

Mei, S , M Nei. (2007). Relationship of knowledge sharing, knowledge characteristics, absorptive capacity and innovation:An empirical study of Wuhan Optoelectronic cluster. *The Business Review,Cambridge*, 154-161.

Mhosen, S. A. (2010). The relationship between knowledge management practices and innovation level in organizations: Case study of sub companies. *Journal of Business Case Studies,*, 89–97.

Michael Stoica, Robert Boncella. (2013). The relationship between innovation, knowledge, and performance in family and non-family firms: an analysis of SMEs.

Naghavi, N. Mohamad, Z. and Sambasivan, M. (2012). "The Mediating Role of Organizational Innovation on the Relationship between Knowledge Management Processes and Organizational Performance in the Public Sector". *Knowledge Management International Conference*.

Nonaka, I. and Takeuchi, H. (1995). The Knowledge Creating Company. *Oxford University Press*.

Nonaka, I. e. (2000). SECI, Ba and Leadership: a UniÆed Model of Dynamic Knowledge Creation. *Amsterdam: Elsevier Science Ltd.*

Nonaka, I., Takeuchi, H. (1995). *The knowledge-creating company. How Japanese companies create the dynamics of innovation.* Oxford University Press, Oxford.

O'dell, C. &. (1998). Only we knew what we know: identification and transfer of internal best practices. . *California Management Review*, 154-174.

OECD. (1996). The Knowledge-based Economy. *OECD, Paris*.

OECD. (2005). The Measurement of Scientific and Technological Activities: Guidelines for Collecting and interpreting innovation. *European commission*.

OECD. (2005). The Measurement of Scientific and Technological Activities: Guidelines for Collecting and interpreting Innovation. *European Commission*.

Ofek, E. and Sarvary, M. (2001). "Leveraging the customer base: creating competitive advantage through knowledge management". *Management Science*, 1441-1456.

Ottenbacher, M. and Harrington, R. (2009). The product innovation process of quick-service restaurant chains. *International Journal of Contemporary Hospitality Management,*, 523 - 541.

Palas, F. e. (2013). Investigating Organisational Innovativeness: Developing A Multidimensional Formative Measure,. *International Journal of Innovation Management,*.

Palas, F. et al. (2013). Investigating Organisational Innovativeness: Developing A Multidimensional Formative measure. *International Journal of Innovation Management*.

Pena, I. (2002). Intellectual capital and business start-up success. *Journal of Intellectual Capital*, 180-198.

Plessis, M. (2007). The role of knowledge management in innovation. *Journal of knowledge management*, 20-29.

Plessis, M. (2007). The role of knowledge management in innovation. *Journal of knowledge management*, 20-29.

Polder, M. Leeuwen, G. Mohnen, P. and Raymond, W. (2010). Product, process and organizational innovation : drivers, complementarity and productivity effects. *Maastricht Economic and Social Research and Training Centre on Innovation and Technology*, 1-46.

Polder, M. Leeuwen, G. Mohnen, P. and Raymond, W. (2010). Product, process and organizational innovation drivers, complementarity and productivity effects. *Maastricht Economic and Social Research and Training Centre on Innovation and Technology*, 1-46.

Probst, G. (1999). Practical Knowledge Management: A Model That Works. In G. Probst, S. Roub, & K. romhardt, Managing Knowledge: Building Block for Success. *WILEY*, 17-29.

Pullen, D. (2009). Back to Basics: Electronic Collaboration in the Education Sector in Handbook of Research on Electronic Collaboration and Organizational Synergy. *Information science reference*.

Quinn, J. B. (2000). Outsourcing innovation: The new engine of growth. *Sloan Management Review*, 13–28.

Roscoe, J.T. (1975). Fundamental Research Statistics for the Behavioral Sciences, 2nd edition. New York: Holt Rinehart & Winston.

Schiuma, G. and Carlucci, D. (2008). "The Knowledge-Based Foundations of Organisational Performance Improvements: an Action Research Approach". *Electronic Journal of Knowledge Management* , 333-344.

Senge, P. (1990). The Fifth Discipline: The Art and Practice of the Learning Organization. *New York: Random House Business*.

Sethi, R. S. (2001). The Effect of Cross-Functional Product Development Teams on the Innovativeness of New Consumer Products,. *Journal of Marketing Research*, 73-85.

Singh, S. (2007). What are we managing — knowledge or information. *Journal of Information and Knowledge Mnagment System*, 169-179.

Sinkula, J. M., Baker, W. E., & Noordewier, T. (1997). A framework for market-based organizational learning: linking values, Knowledge and beaviour. *Journal of the academy of Marketing Science,*, 305-318.

Steele, J and M Murray. (2004). Creating, supporting and sustaining a culture of innovation. *Engineering, Construction and Architectural Management,*, 316-327.

Stewart Johnston, A. P. (2007). Knowledge management and involvement in innovations in MNC subsidiaries. *Management International Review* .

Subramanium, M. (2006). Integrating cross-border knowledge for transnational new product development. *The Journal of Product Innovation Management,*, 541-555.

Tan, C. L. (2010). Knowledge management effectiveness and technological innovation: An empirical study in the Malaysian manufacturing industry. *Journal of Mobile Technologies, Knowledge and Society,*, 13–17.

Tippins, M. J., and Sohi, R. S. (2003). IT competency and firm performance: is organizational learning a missing link? *Strategic Management Journal*, 745-761.

Trott, P. and Hartmann, D. (2009). Why 'Open Innovation' is Old Wine in New Bottles. *International Journal of Innovation Management*, 715-736.

Van De Vrande, V. Vanhaverbeke, W. and Gassmann, O. (2010). Broadening the Scope of Open Innovation: Past Research, Current State and Future Direction. *International Journal of Technology Managment.*, 221-235.

Van den Hooff, B. &. (2004). Committed to Share: Commitment and CMC Use as Antecedents of Knowledge Sharing. . *Knowledge and Process Management*, 12-13.

Vorhies, D. W. and Morgan, N. A. (2005). Benchmarking marketing capabilities for sustainable competitive advantage. *Journal of Marketing*, 80–94.

Wang, C. L., and Ahmed, P. K. (2004). The development and validation of the organizational innovativeness construct using confirmatory factor analysis. *European Journal of Innovation Management*, 303- 313.

Weerawardena, J. O. (2006). Does industry matter? Examining the role of industry structure and organizational learning in innovation and brand performance. *Journal of business research,*, 37-45.

WEF. (2014). *The Global Competiti Veness Report.* Geneva: World Economic Forum.

Wernerfelt, B. (1984). "A resource-based view of the firm". *Strategic Management Journa*, 171-180.

Wilson, G. (2007). Knowledge, innovation and re-inventing technical assistance for development. *Progress in Development Studies,*, 183–199.

Wong, K. Y., Aspinwall, E. (2004). Characterizing knowledge management in the small business environment. *Journal of knowledge management*, 44–61.

Xu, J., Houssin, R., Caillaud, E., & Gardoni, M. (2010). Macro process of knowledge management for continuous innovation. *Journal of Knowledge Management,*, 573-591.

Zahra, S. A. and George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 185–203.

Zhang, H., Shu, C., Jiang, X., & Malter, A. J. (2010). Managing knowledge for innovation: The role of cooperation, competition, and alliance nationality. *Journal of International marketing*, 74–94.

Zirger, B. J. (1997). The Influence of Development Experience and Product Innovativeness on Product Outcome. *Technology Analysis & Strategic Management*, 287-297.

Appendices

The impact of knowledge management on innovation: An empirical study of private sector industries

QUESTIONNAIRE

This research is intended to check the impact of knowledge management on innovation. The aim of this study is to provide insights into how organisations manages knowledge which leads to innovation.

Respondents' Profile:

Gender: _____ **Qualification: _____**

Designation: _____ **Work experience: _____**

Questionnaire

Extremely Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly agree	Moderately agree	Extremely agree
1	2	3	4	5	6	7

Knowledge Identification:

(1) My organization know the available knowledge and skill both inside and outside the organizations.

1	2	3	4	5	6	7

(2) My organization always try to adjust the employee's knowledge and abilities with require knowledge

1	2	3	4	5	6	7

(3) My organization Identify the employee's knowledge.

1	2	3	4	5	6	7

(4) My organization Identify the useful knowledge which is available in the organizational working process.

1	2	3	4	5	6	7

Knowledge Creation:

(1) My organization has the mechanisms of creating and acquiring knowledge from different sources such as employees, customers, business partners and companies.

1	2	3	4	5	6	7

(2) My organization encourage the employees to exchange their knowledge and ideas.

1	2	3	4	5	6	7

(3) My organization give rewards for new ideas and knowledge.

1	2	3	4	5	6	7

(4) My organization has mechanism for creating new knowledge from existing knowledge.

1	2	3	4	5	6	7

Knowledge Collection:

(1) My organization collect the useful knowledge which identified from various sources.

1	2	3	4	5	6	7

(2) My organization ask when there is a need to certain knowledge.

1	2	3	4	5	6	7

(3) My organization give the information about what we want.

1	2	3	4	5	6	7

(4) My organization allow others to ask about the abilities when there is a need to learn something.

1	2	3	4	5	6	7

Knowledge Organizing

(1) My organization has policy is to review knowledge on a regular basis and keep them up to date.

1	2	3	4	5	6	7

(2) My organization has the mechanisms for filtering, cross listing different types of knowledge.

1	2	3	4	5	6	7

(3) My organization give feedback to employees about their ideas and knowledge.

1	2	3	4	5	6	7

(4) My organization has processes for spread knowledge learned from experiences.

1	2	3	4	5	6	7

Knowledge Storage

(1) My organization use the databases and information technology applications to store the knowledge for easy access by all employees.

1	2	3	4	5	6	7

(2) My organization use various written materials like brochures, manuals to store the knowledge.

1	2	3	4	5	6	7

(3) My organization has different publications to display the capture knowledge.

1	2	3	4	5	6	7

(4) My organization has mechanism to patent and copyright new knowledge.

1	2	3	4	5	6	7

Knowledge Dissemination

(1) My organization provide knowledge that is readily accessible to employees who need it.

1	2	3	4	5	6	7

(2) My organization send timely reports with appropriate information to employees.

1	2	3	4	5	6	7

(3) My organization has libraries, resource center and other forums to display the knowledge.

1	2	3	4	5	6	7

(4) My organization has lecturers, conferences and training sessions to sharing knowledge.

1	2	3	4	5	6	7

Knowledge Application

(1) My organization provide different methods for develop of knowledge.

1	2	3	4	5	6	7

(2) My organization has mechanism to protect the knowledge inside and outside the organizations.

1	2	3	4	5	6	7

(3) My organization apply knowledge to critical competitive needs and quickly links sources of knowledge in problem solving.

1	2	3	4	5	6	7

(4) My organization provide methods to analyzing and evaluating knowledge to generate new patterns and knowledge for future use.

1	2	3	4	5	6	7

Product innovation

(1) My organization increase manufacturing quality in components and materials of current products.

1	2	3	4	5	6	7

(2) My organization decrease manufacturing cost in components and materials of current products

1	2	3	4	5	6	7

(3) My organization grow newness for current products leading to improved ease of use for customers and to improved customer satisfaction.

1	2	3	4	5	6	7

(4) My organization grow new products with technical specifications and functionalities totally differing from the current ones.

1	2	3	4	5	6	7

(5) My organization grow new products with components and materials totally differing from the current ones.

1	2	3	4	5	6	7

Process innovation

(1) My organization control and eliminate non-value-adding activities in production processes.

1	**2**	**3**	**4**	**5**	**6**	**7**

(2) My organization reduce variable cost components in manufacturing processes.

1	**2**	**3**	**4**	**5**	**6**	**7**

(3) My organization increases output quality in manufacturing processes.

1	**2**	**3**	**4**	**5**	**6**	**7**

(4) My organization control and eliminate non-value-adding activities in delivery-related processes.

1	**2**	**3**	**4**	**5**	**6**	**7**

(5) My organization reduce variable cost and increasing delivery speed in delivery-related logistics processes.

1	**2**	**3**	**4**	**5**	**6**	**7**