KNOWLEDGE MANAGEMENT AND PERFORMANCE: A CONCEPTUAL REVIEW

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International Academic Journal of Human Resource and Business Administration

(IAJHRBA) | ISSN 2518-2374

Received: 2nd June 2021

Published: 3rd June 2021

Full Length Research

Available Online at: http://iajournals.org/articles/iajhrba_v3_i9_538_553.pdf

Citation: Ndabari, M. (2021). Knowledge management and performance: A conceptual review. *International Academic Journal of Human Resource and Business Administration, 3*(9), *538-553*

ABSTRACT

Knowledge management, is managing information flow, and getting the right information to the people who need it so that they can act on it quickly. It starts with business objectives and processes and recognition of the need to share information. The purpose of this review is to explore knowledge management drivers and performance. This paper seeks to review empirical literature and provide a conceptual overview of knowledge management and its unique contribution to performance. It seeks to identify critical characteristics that will create competencies that can reorganize an institution towards improved performance. Application of the knowledge management process can hasten the deployment of new knowledge and innovations in a sector and transform performance this has a positive impact on individuals and the economy.

Key Words: Knowledge, Knowledge management, Knowledge management process.

INTRODUCTION

Individuals and organizations have begun to acknowledge the increasingly important role of knowledge in the present competitive environment. Knowledge is a source of sustained competitive advantage. It is difficult to imitate and is embedded in the entity such as in organizational culture, systems, policies, business entity, business owner and employees. However, important to note is that knowledge is complex and difficult to manage (Khalil, 2006; Ling-hsing, & Tung-ching, 2020). Organisations at all levels have several reasons to adopt knowledge management initiatives. Among the key drivers of knowledge management is to enhance internal collaboration, to capture and share best practices, to provide project workspace, to ascertain a platform to manage customer relationships and for competitive intelligence (McDonough & Rahal, 2002; Martin-Rios, & Erhardt, 2016).

The concept of knowledge management is not new. Organisations and societies have coded, stored, and transmitted knowledge over time. However, the current advancement in information technology has greatly enhanced the knowledge management process. Information technology has enhanced organisational processes of knowledge creation, storage and retrieval, transfer and application (Alavi & Leidner, 2001; Nesheim & Gressgård, 2014).

Knowledge Management

Knowledge has increasingly become a vital resource within our communities, institutions and organisations, practical insights are needed for optimizing its use. It is apparent that knowledge is slowly becoming the most important factor of production, next to labour, land and capital (Sher & Lee, 2004). From the resource-based view of a firm, knowledge is a resource that can confer competitive advantage and lead to superior performance of firms that have capabilities to leverage the knowledge assets (Senaji, et al, 2011). Another useful definition of knowledge; it is that which is believed and value based on the meaningful

organized information from the human mind through experience and communication with guidance for action and is a much more implicit entity (Mahdi, Almsafir, & Yao, 2011).

The role of knowledge management (KM) is business optimization, it meaningfully assists delivery of an optimal business strategy. It contributes relevance to the realization of the chosen strategy in an enterprise. Nonaka and Tekeuchi (1995) advanced that the integration of existing knowledge captured in the expertise of employees and the generation of new knowledge are of paramount importance to the success of organizations.

No universally accepted definition of KM exists. Nonetheless, most authors suggest that KM should be a systematic approach rather than individual or disjointed initiatives; that it includes at least the organizational process of capturing, integrating, disseminating, and applying organizational knowledge; and its purpose is for enhancing business value (Puzzangher, 1999). Karadsheh et al. (2009) defined knowledge management as a structured process with activities to capture, discover, create, filter, evaluate, store, share and apply knowledge from individuals to advance business processes and meet organization‘s objectives and goals.

A key definition of KM that is quite appropriate for this review is that by Holsapple (2004), who defined knowledge management as an entity's systematic and deliberate efforts to expand, cultivate, and apply available knowledge in ways that add value to the entity; in the sense of positive results in accomplishing its objectives or fulfilling its purpose. The Gartner Group also defined knowledge management as an integrated approach to identifying, capturing, retrieving, sharing, and evaluating an enterprise’s information assets. These information assets may include databases, documents, policies and procedures, as well as the un-captured tacit expertise and experience stored in individual workers’ heads” (Gartner Group, 1999).

Abdullah et al., (2009) viewed knowledge management processes to include knowledge identification, creation, acquisition, transfer, sharing, and exploitation. Becerra-Fernandez, Gonzales and Sabherwal (2004) distinguished that KM processes can help create knowledge, which can then contribute to improved entity’s performance. An organisation’s performance is improved when the organisations create, transfer, use and protect knowledge (Mohrman et al., 2003; Marques & Simon, 2006).

Knowledge Management Process

Knowledge management processes are defined as “an ongoing set of practices embedded in the social and physical structure of the organization with knowledge as their final product” (Pentland, 1995). Capabilities of KM processes are essential to leverage the KM infrastructure capabilities. Thomas, Sussman & Henderson (2001) conceive that there are four critical stages of management of a firm’s knowledge. These are knowledge creation and acquisition; knowledge transfer; conversion/interpretation of knowledge to serve organization goals; and application of knowledge to achieve organization goals. In addition Gold et al. (2001) empirically proved that effective knowledge management was the result of knowledge infrastructure that is technology, structure, culture and knowledge process architecture that is

acquisition, conversion, application and protection of knowledge. These are the essential organizational capabilities for effectual KM.

Knowledge management processes are the processes or practices that facilitate knowledge sharing and establish learning as a continuous process within an organization or entity (Singh, 2008). The KM processes of an organization are focused towards obtaining, sharing, storing, and using knowledge. Organizations who are successful in leveraging knowledge, normally witness increased efficiencies in operations, higher rates of successful innovations, increased levels of customer service, and an ability to have foresight on trends and patterns emerging in the marketplace (Sandhawalia & Dalcher, 2011).

Knowledge Creation/Acquisition

An organization in the knowledge age is one that learns, remembers, and acts based on the best available information and know-how (Dalkir, 2005). To create knowledge an organization receives information from the environment both internal and external. This information is subject to the beliefs, values and rules of the organization and the individuals in the organization. Knowledge creation deals with a multiplicity of knowledge whether tacit or explicit. (Senaji, 2008; 2011). This creation is accelerated by encouraging synergistic interrelations of individuals from diverse backgrounds (Lee et al., 2005). Knowledge is created through continuous, dynamic interactions between explicit knowledge and tacit knowledge. This kind of interaction is called 'knowledge conversion' or SECI (Socialization, Externalization, Combination, and Internalization), and that dynamic organizations are those that not only process information but also create information and knowledge (Nonaka, 1994; 2000). Knowledge creation can be viewed as an upward spiral process starting at the individual level moving up to the collective (group) level and then to the organizational level and sometimes even to the inter-organizational level. As Gold et al., (2001) posit that organization knowledge creation occurs at two levels, between the individuals and between the organization and its network of business partners. Two examples of these processes of acquisition are benchmarking and collaborations (Inkpen, 2008).

Knowledge Conversion

This is a KM process that makes existing knowledge useful to the organization. KM process that make existing knowledge useful, these include the firm's ability to organise, integrate, combine, structure, coordinate or distribute knowledge. Knowledge in an organisation ideally resides in different parts or systems of the organisation, there's need to integrate this knowledge to reduce redundancy, enhance consistent representation and improve efficiency(Gold et al., 2001). An organization requires a framework for organizing or structuring its knowledge, a platform which provides standards and consistency. The primary goal of an organization should be to integrate specialized knowledge of many individuals. Common mechanisms of facilitating integration include rules and directives, routines, sequencing, group problem solving and decision making. The firm applies knowledge conversion through understanding and interpretation of the knowledge acquired in the local set up (Senaji, 2008; 2011).

Knowledge Application

Knowledge is effectively applied during the developmental processes of an organization through rules and directives, routines and self-organized teams. Knowledge is applied to formulate and refine the standards, procedures and processes developed to execute tasks within the organization. Knowledge application processes that are associated with the application of knowledge include storage, retrieval, application, contribution, and sharing. Effective storage and retrieval mechanisms allow the organization to access knowledge quickly. To remain competitive, organizations must create, capture, and locate organizational knowledge. Davenport & Klahr (1998) posit that customer support and product development times increase when the organisation is able to effectively share knowledge. This enhances efficiency and reduces costs.

Knowledge Protection

Knowledge is a strategic resource in today's competitive environment and thus must be protected. This is the knowledge based view which poses that knowledge is distributed throughout the enterprise in the people (tacit knowledge), processes, and systems. Bearing this in mind knowledge protection can be effected through IT systems; however it is important to highlight that a large amount of knowledge resides in the minds of employees, so protecting this knowledge requires use of soft systems such as employee incentives to promote employee retention (Kumar, 2009). Achieving knowledge protection allows the organisation extended time to profit from its innovations, and consequently higher profit margins. Thus promoting further innovation which leads to a positive cycle of innovation(Laukkanen & Hurmelinna-laukkanen, 2011).

Performance

Sustainability is a quality that emerges when people individually or collectively apply their intelligence to maintain the long-term productivity of the natural resources on which they depend (Sriskandarajah, et al., 2005). Sustainability emerges out of shared human experiences, objectives, knowledge, decisions, technology, and organization. The ability to generate new knowledge is a fundamental mechanism of KM systems that influence performance of a firm. Effective process of KM facilitates firms to perform more efficiently and persist in a competitive environment through sustaining their competitive advantages and developing their knowledge assets. RBV and KBV view KM as a critical resource which considerably influences organizational success (Beesley& Cooper, 2008).

Muraga and Arts (2015) observed that the strategic goal of any business is superior performance, through provision of quality products and services within a short time. Organisational performance is conceptualized on financial measures which include market share, return on investment and financial profitability. Non-financial measures such as effectiveness, quality, efficiency and brand, (Waiganjo, Mukulu & Kahiri, 2012).

UNDP (2010), indicated organizational effectiveness as the extent to which a firm realises its immediate objectives or desired outcomes that is, task fulfilment. According to Scott (2003) organizational effectiveness is a measure of performance against a defined standard.

Organizational efficiency is the optimal transformation activities of inputs into outputs. Realised in the accuracy, timeliness and value of service and program delivery. It focuses on rational use of resources at planned level, attaining timelines and underscores least costs and maximum result (UNDP, 2010; Njuguna, 2013). Organizational efficiency is a relationship that reflects a comparison of outputs accomplished, to the costs incurred in accomplishing these goals. While organizational relevance denotes a firm's ability to gain the support of its key stakeholders as well as meet their needs in the past, present and future, that is, the extent to which a firm adapts to changing conditions and its environment. It is the firm's ability to innovate and create new and more effective positions as a result of perception and new knowledge (Montalvan, 2002; Njuguna, 2013).

Objective of the review

This paper is a conceptual discussion on the relationship between knowledge management and performance to review effects of knowledge process, knowledge acquisition, knowledge conversion, knowledge application, and knowledge protection.

THEORETICAL REVIEW

Resource Based View

The Resource Based View (RBV) theory is founded on the work of Penrose (1959), while others who have extended the theory include, Wernerfelt's (1984), Dierickx and Cool (1989), Rumelt (1994), Barney (1996). Penrose proposed that a firm's resources are specialized and efficient in certain uses, while unused resources become available for further growth and influence the direction and scope of a firm's activities.

Barney (1991) posit that sustained competitive advantage derives from the resources and capabilities a firm controls, that are valuable, rare, imperfectly imitable, and not substitutable. These resources and capabilities can be viewed as bundles of tangible and intangible assets, and include a firm's management skills, its organizational processes and routines, and the information and knowledge it controls. An organization gains competitive advantage by not only attaining but also developing, putting together, and effectively positioning its physical, human, and organizational resources in techniques that put in unique value and that are difficult for competitors to imitate. The resource based view states that competitive advantage comes from the internal resources that are owned by a firm (Wernerfelt, 2004).

The resource-based view is the perspective that emphasizes the key role played by resources and capabilities in the creation of competitive advantage. The general terminology or resources, skills, competences, and capabilities have been developed into a theoretical concept of core competences, strategic assets, and distinctive capabilities. This central concept is essentially the underlying capability that is the distinguishing characteristic of the organization (Mcgee, 2010). Resources are defined as inputs into the firm's operations so as to produce goods and services. Strategists go further and distinguish capabilities from resources. A capability is the ability to perform a task or activity that involves complex patterns of coordination and cooperation between people and other resources. Capabilities

would include research and development expertise, customer service, and high-quality manufacturing.

Mcgee (2018) suggest that the inherent value of the strategic assets for the firm depends on the ways in which the firm combines, coordinates, and positions these assets in tandem the with other firm-specific and more generic resources and capabilities. That strategists are interested in those resources and capabilities that can earn rents (a surplus of revenue over cost). These collectively are known as strategic assets or core competences and are a subset of, but distinct from, those other resources and capabilities that do not distinctively support the competitive advantage. The strategic task for the firm is to sustain these rent streams over time by creating and protecting the competitive advantage and the strategic assets that together underpin them.

Thus the resource based view theory of the firm, perceives the firm as a unique bundle of distinct resources and capabilities where the key task is to maximize value through the optimal positioning of existing resources and capabilities. Resources that are valuable and rare can lead to the creation of sustained competitive advantage (SCA). That advantage can be sustained over longer time periods to the extent that the firm is able to protect against resource imitation, transfer, or substitution and hence ultimately achieving sustainability (Barney, 1991). Some of the resources whose value the organisation has to maximize include; capabilities, land and its components, knowledge, extension, development agencies, factor inputs, technology, funding, labour, and others.

Knowledge Based View

Grant (1996) conceptualized the firm as an institution for integrating knowledge. In which the knowledge resides within individuals and the primary role of the organisation being to establish the coordination necessary to integrate this knowledge leading to organisation innovations and trends. As an outgrowth of the resource based view, the knowledge based theory of the firm (KBV) considers innovative knowledge as the most strategically significant resource of a firm, which is what the firm needs to dominate an industry (Malik & Malik, 2008). KBV views a firm as a "distributed knowledge system" composed of knowledge holding employees, in which the firm's role is to coordinate the work of the employees so as to create knowledge and value for the firm. Its proponents argue that because knowledge-based resources are usually difficult to imitate and socially complex, heterogeneous knowledge bases and capabilities among firms are the major determinants of sustained competitive advantage and superior corporate performance.

The knowledge is embedded and carried through multiple entities including organizational culture and identity, policies, routines, documents, systems, and employees. Originating from the strategic management literature, the KBV perspective builds upon and extends the resource-based view of the firm (RBV) initially promoted by Penrose (1959) and later expanded by others (Wernerfelt 1984, Barney 1991, Conner 1991). Carlucci et al., (2004) contends that knowledge assets are as important for competitive advantage and survival, if not more important, than physical and financial assets. Knowledge and capabilities-based views in strategy have largely extended resource based reasoning by suggesting that

knowledge is the primary resource underlying new value creation, heterogeneity, and competitive advantage (Barney, 2001a; Felin & Hesterly, 2007). As proposed earlier knowledge is a key strategic resource and organisations try to reduce risk by contacting multiple sources of information as they go about acquiring knowledge (Hartwich et al, 2007).

Empirical Review

Different empirical studies have shown that knowledge, in fact, cannot be easily generated in research organizations, and passed down to the extension services and development projects which diffuse it among farmers. In response, new ways of managing knowledge have emerged across developing countries, focusing on new dynamics such as participation, collaboration and joint learning between farmers and other agents contributing to the development and diffusion of knowledge beyond the traditional farmer-extension link. In their study of the Bolivian Agricultural Technology System, Hartwich, et al, (2007) documented a new approach adopted by the Bolivian government and various donor agencies that had a better success rate in disseminating agricultural knowledge among small farmers and propagating the markets for local knowledge. In this approach regional foundations for technology development were formed and made responsible for allocating funds to applied innovation projects responding to demands articulated by farmers' groups. The foundations contract knowledge suppliers, such as research organizations and private knowledge consultants, to transfer knowledge to the farmers. Implicitly, this scheme promotes a form of knowledge management that reaches beyond the farmer-extension link, involving a third institution – the regional foundations – as promoters, analysts, financers and coordinators of knowledge exchange.

Thompson and Scoones (1994) argue that knowledge management in agriculture cannot be improved by simple measures, such as by transferring power from the outside to the inside, from researchers to farmers, but only through complex social processes that do not necessarily follow systemic patterns. According to these authors, knowledge creation requires knowledge management practices capable of involving multiple agents, consistent with recent approaches to innovation based on the ideas of auto-organization of entrepreneurs (Miles et al 1997), social R&D networks (Sorenson et al. 2006) and complex adaptive systems (Kauffman 1995). In a complex adaptive system, individuals and organizations act and survive by adapting and learning to organize themselves into communities, providing the necessary ground for the creation and improvement of knowledge. Agents in such a system are free to act and learn independently or collectively. In other words, their collective behaviour is complex, not managed from above but emergent from the structure of the network of interactions in which they are embedded. Creativity and innovation increase with the diversity of the members in the system, and the levels of learning and adaptation increase with the density of communication within the system.

Rafea, 2009 posits that poor mechanisms and infrastructure for sharing and exchanging agricultural knowledge generated from research at national and regional levels, results in many research activities being repeated. Researchers can find research papers published in international journals and conferences more easily than finding research papers published

nationally in local journals, conferences, theses and technical reports. In addition mechanisms and infrastructure for transferring technologies produced as the result of research to farmers either directly or through intermediaries (extension subsystem) are inefficient and do not properly develop an environment for knowledge and technologies fostering agricultural production. The environment within which the small dairy farmer operates would be enhanced by easily accessing and availing economic and social knowledge to different stakeholders at operational, management and decision-making levels, so that those responsible would be able to make appropriate decisions regarding the policies, regulations, infrastructure, and services and their effect on resource-poor farmers.

Laukkanen (2000) explores the notion of sustainability of the structure and dynamics of different agrarian municipalities in Finland as social entities and micro economics. The researcher reports about the knowledge that extension educators have concerning the dimensions on sustainable agriculture. McElroy (2008) identifies knowledge as the key factor in regarding sustainability. Farmers can be considered as human information processing systems. Human decision making involves two components (Newell and Simon 1972). First are the farmer personal characteristics. In this respect, there have been studies regarding the characteristics that influence farmers in order to adopt specific farming practices. (Lauwereet al. 2004). In the second place, there's the person's knowledge processes regarding farming practices. The knowledge processes implied here are those that the individual farmer undertakes to understand the information received. These mind-set orientations and reasoning patterns also influence how the farmer is inclined to share knowledge or be a part of the knowledge creating processes. Farmers should possess agricultural related knowledge structures that are used to interpret events or to initiate, formulate or recommend plans, projects or decisions.

Carreon et al, (2011) posit that the complexity of sustainable agriculture requires individuals to possess much knowledge regarding agricultural systems in order to make them behave in a sustainable way. Individuals require the acquisition of new insights and forgetting old customs that stand in the way of sustainability. Hence local knowledge constitutes an extensive realm of accumulated practical knowledge and knowledge generating or creating capacities that is needed if sustainability and development goals have to be reached. Therefore it is relevant to understand what knowledge farmers have about sustainable agriculture. It is also relevant to identify the mind-settings and reasoning patterns used by farmers to interpret this knowledge. Not only is it important to understand the mental models the farmers possess, but also what type of knowledge they might favour. The types of knowledge give an insight regarding the way farmers prefer to reason and to learn and in so doing influence knowledge management process capabilities.

1.6 Conceptual framework

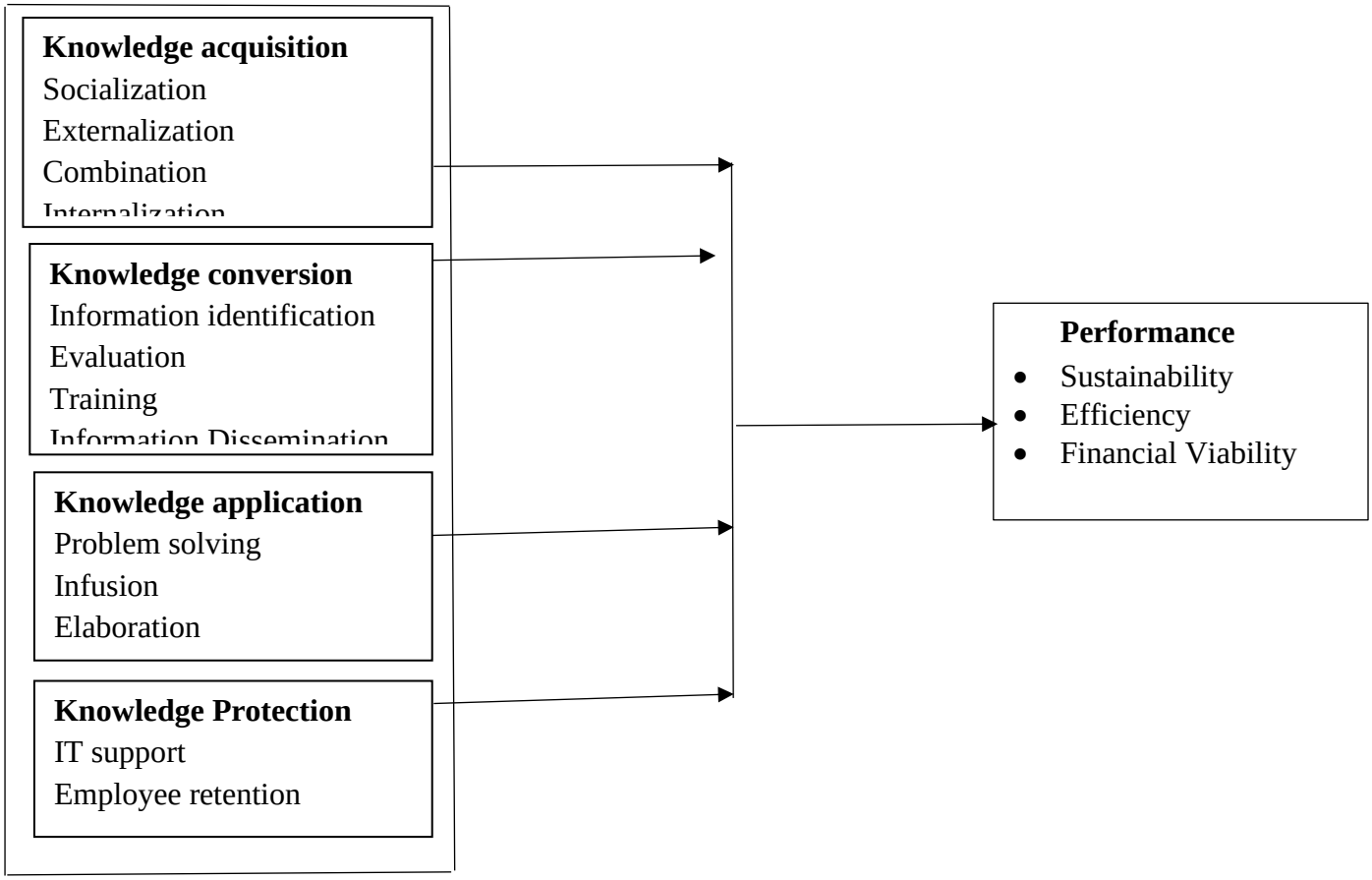

Figure 2.1: Conceptual framework
(Source: Author, 2021)

Knowledge Management application

In Africa, the Kenyan dairy industry is the second largest in terms of the number of people it employs and amount of milk produced after South Africa. Due to a significant number of the Small holder dairy farmers, innovation and application of knowledge systems remains a challenge and less cost effective. (Small holder Dairy Project, 2008)

Dairy farming is as such a key economic activity in developing countries, ensuring a regular cash flow to the farmers in contrast to the intermittent incomes from crop cultivation and other forms of livestock farming such as bee keeping and pig farming (FAO 2014). In Kenya it is a major source of job creation; on average, for every 1000 litres of milk produced at the farm level, 73 fulltime and 3 casual jobs are created, 18 jobs in the informal sector and 13 full time jobs at the processing level (Staal et al. 2008). Approximately 80 percent of the dairy output in Kenya is from small holders, many of whom are in the highlands (Smallholder Dairy Project, 2008).

Kenya's dairy sector had significant growth between 2005 and 2012 as evident from increases in recorded milk production, from 2.650 to 3.733 billion litres, growth in dairy herd size from 3.5 million to 4.2 million and per capita per cow milk output increase from 757 to 898 litres over the same period (Gok, 2013; FAO, 2014). Such significant growth has led Kenya to be self-sufficient in milk production (Wambugu et al. 2011). In addition, the country's new policies in thedairy sector are expected to generate significant increases in dairy production.

Smallholder dairy farming is carried out by autonomous family units, with one or two hired workers, hence making their operations Micro and Small Enterprises [M.S.E's] which scarcely enjoy the economies of scale (GOK, 2012). Smallholder dairy farmers satisfy numerous functions in the agricultural economy. These functions include food security equitable distribution of income and creation of opportunities for employment especially to the rural poor (Dorosh & Haggblade, 2003), hence making the sector an important economic driver. In this regard, Dairy farmers being key agents of economic growth would be expected to advance their operations to medium enterprises through use of knowledge management processes, an expanded herd size, advanced operating skills, use of modern technology, diversified portfolio of dairy products resulting from value addition activities, and use of appropriate marketing channels (Mutura et al. 2015). Even though Kenya's dairy sector has a significant contribution to the national economy, there are a number of economic and institutional and technical problems concerning milk production, processing and marketing (Karanja, 2003). Consequently, the ability of the sector to participate and compete in the domestic and regional markets is highly affected (Wambugu et al. 2011).

In the case of the Kenya's small scale dairy farming, there is need to integrate knowledge that exists with the farmers, research institutes and the industry for the success of the enterprises. It is worth noting that the dynamic nature of the new market place has created a competitive incentive among many enterprises to consolidate and reconcile knowledge assets as a means of creating value that is sustainable over time (Senaji, 2011).

Recommendations for Further Research

Little consideration has been given to measuring the knowledge performance and drivers of innovation for improvement of small and medium enterprises. Focus has mainly been on the corporate firms. Without understanding innovation, it is difficult to make policies and provide targeted, impactful support to small and medium enterprises. Future studies can be done to look at KM drivers and performance of small and medium sized enterprises.

Conclusion

It is possible for the firms to have structured processes with activities that capture, realise, generate, sift, assess, store, disseminate and relate knowledge from individuals to advance business processes and attain value addition and sustainable production.Access to relevant knowledge and information can enable firms to make informed decisions regarding their production activities, marketing for better profits, and benefiting from new knowledge.

It is important to understand the organisation characteristics, and also what type of knowledge they might favour. The types of knowledge give an insight regarding the way firms prefer to reason and to learn and in so doing influence knowledge management process capabilities. To explore the impact of knowledge management on performance of organisations requires an empirical study to hypothesize the knowledge management processes and their significance to performance of the firm.

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