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Knowledge management maturity and growth: A strategic perspective of Pakistani universities

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ABSTRACT:
Purpose of the study was to provide a road map for practitioners to access the knowledge management maturity and align the knowledge management with business strategies achieving the objectives. This study is conducted in Pakistani universities. Knowledge management maturity assessment questionnaire is use in this study for accessing the level of knowledge management maturity and growth. Data is analyzed through SPSS and AMOS. Descriptive statistics, correlation, confirmatory factor analysis and structure equation modeling techniques are use in this study to interpret the data. Result of the study show that information management is enabler of knowledge the management but not a knowledge management. Results show that knowledge management is strategic resource, which is not transferable. Mean of variable show that organization considered the knowledge management as strategic resource and trying to build infrastructure for successful institutionalization of knowledge management. But there is still gap in formulation of knowledge management strategies and implementation of knowledge management strategies. This study suggests that knowledge management is not at maturity level in Pakistani universities. There is still need to focus more and more on knowledge management for achieving the knowledge management growth.
Keywords: Knowledge management, Knowledge as asset, Formulation of knowledge management strategies, Implementation of knowledge management strategies, Knowledge management performance, Knowledge management maturity, Knowledge management growth

Introduction:

Knowledge management is a unique strategic resource that create barrier for imitating and transferring the intellectual capabilities of organization (Wernerfelt, 1984). Different classified knowledge management strategies used in organization. Organizational knowledge management strategies help to create, store, share and use the knowledge (Choi and lee, 1998). Knowledge stores in explicit database of organization and use by individual in organization(Hensen et.al1999, Ewing & West, 2000). In system base strategies, knowledge codified with help of information technology and then use to achieve the objectives (Davenport, 1998, Lee & Kim 2008). Another important knowledge management strategy is human oriented strategy. Tacit knowledge comes from experience and heads of people. Different knowledge management strategies adopted by organization according to circumstances. Organizational have to focus on dynamic strategy of knowledge management which support the tacit and explicit knowledge (Wu and Lee 2007) because combining the both tacit and explicit knowledge management strategies, it enhance the knowledge sharing which increase the productivity and knowledge management creation (Johennessen and Olsen 2003). An organization workforce becomes competent only if it has knowledge. A unique and comprehensive knowledge is mandatory for achieving effectiveness and efficiency of organization. Organization cannot survive in this competitive environment without proper knowledge management. Due to the development of information technology importance of knowledge management had increased. Researcher paid more attention on knowledge management from last decade. Importance of knowledge management has been increase in business. Organization use knowledge for providing services to its customer and manufacturing the goods. Use of knowledge is very important for organization (Armistead, Meakins 2002). Knowledge has become the strategic unit of the organization (Laudon and Laudon 2004).

Success of a firm depends on creating, sharing and upgrading of knowledge (Drucker 1970). Tiwana (2000) describes in their study "most valuable asset of twenty first century will be the knowledge and knowledge workers. In future knowledge and knowledgeable workforce of organization will be the most value able asset. Because capital and other asset are achieved utilizing of knowledge (Drucker1970). To achieve more financial and tangible asset managers have to achieve sufficient knowledge about the policies and strategies and knowledge management (Daven port 1998). Knowledge management strategies and policies enable and organization to achieve the competitive edge. Managers have to take part in knowledge management decision-making (Laudon and Laudon 2004).Knowledge increase the physical asset and performance of organization but in many, organizations knowledge management managers did not take part as strategic partner of the organization. Development of competitive business strategy is difficult without knowledge management strategies. To maximize the profit of shareholder and achievement of competitive edge, organization has to align their business strategy with knowledge management strategies (Papp, 1998). Business and knowledge management strategies are dependent each other, Therefore setting objectives and business direction both strategies should be align (Zack, 1999). The purpose of this study is to provide a comprehensive guideline for managers and practitioner to align knowledge management strategies with business strategies. To study as managerial perspective knowledge and strategic management, not technological perspective. Objective of the study to provide, comprehensive information about the role of knowledge in developing business strategy and investigate the role of knowledge management to achieve effectiveness and efficiency of organization. A comprehensive criterion of measurement introduced to analyze the effectiveness and efficiency of knowledge and knowledge management. It also emphasis that innovation is measured criteria to judge the effectiveness and efficiency of knowledge and knowledge management. Due to increase in competition and advancement in technology importance knowledge increased. Knowledge and intellectual capital are strategic resource of the organization. A comprehensive knowledge management plays a key role in achieving effectiveness efficiency of organization. There is no proper guideline available to align the knowledge management as strategic/ managerial perspective in organization. This study will provide a comprehensive roadmap to align the knowledge management with business strategy.

Literature Review:

Knowledge as Strategic Resource:

It is a universal truth that knowledge is most valuable and precious asset of organization. It is seldom that you get knowledge when you need hardly. Knowledge found in the mind of knower. Although knowledge is individual entity but it is shared, built and use again & again in organization. Unfortunately, knowledge is also lost in organizational process. Knowledge is unique and valuable asset of organization (Murray, 2000). Technology, market share and product can copy but knowledge is unique and unmatched. Knowledge complexity and knowledge sharing is hurdle for organization to align knowledge with business strategy. Polanyi (1958) introduced the concept of knowledge sharing. Gerter (2003) argued that knowledge exist in our consciousness when a skilled person explain his/her knowledge to unskilled person have to fully understanding of all component of topic before delivering the knowledge. Tiawana (2000) proposed that uniqueness of knowledge creates hurdle to share and manage this valuable asset in organization. It is difficult to describe knowledge and its complexities. Knowledge is fluid mix of experience, policies and process (Davenport & Prusak, 1998). Different people perceived knowledge in a different context.

Therefore, knowledge is more complex because, it shared and managed differently with respect, to people, condition and organization (Snyman, Kruger, 2004). Explicit and internal knowledge held in organization. External knowledge consisted market, product, customer, competitor, market intelligence. Nonaka & Takeuchi proposed four type of knowledge such as implicit knowledge, tacit knowledge, explicit knowledge and external knowledge. Zack (1999) argued that knowledge classified whether it is core knowledge; advance knowledge or innovative knowledge regardless the source and category of knowledge. From business perspective, if the knowledge has value it shared applied and changes to achieve the effectiveness of organization. Von Krogh, Nanaka and Aben (2001) describes in their study that to achieve the competitive advantage and profitability, application of knowledge is more important than knowledge complexities. Above shows that complexities about knowledge and its process, knowledge play a key role in achieving effectiveness and efficiency of organization.

Strategic Perspective of Knowledge:

Skyrme (2000) augmented that knowledge & intellectual capital is hidden resource of organization. Organizations get competitive edge capturing these precious resources (Zack, 1999). Zack (1999) proposed that knowledge is precious resource, which cannot copy, especially when organization has specific context knowledge or tacit knowledge. According to Teece (1998), another way of sustaining in competitive edge is creating and protecting knowledge because knowledge cannot copy. Organizations who achieve the superior

knowledge capabilities, they also use their traditional resource more effectively and efficiently than their competitors (Zack, 1999). Therefore, knowledge is most precious asset of organization. Knowledge strategies should be aligned with business strategies and be supportive in allocation of resources. We came to know that how knowledge, information and skill enhance the effectiveness of organization (Bater, 1999). Bate (1999) describes the value of knowledge assessment with managerial perspective. Developing strategy, strategist should not only focus on external environment, competitors, culture, production, organizational structure & politics but also focus on specific knowledge information and skill to increase the value, sustainability and organization performance. Strategist need to focus on implication of knowledge while developing strategies, decision-making and allocation of resources. Therefore, when a strategy is formulated, strategist not only focus the role of knowledge in developing strategies but also asses the role of knowledge strategy, allocate resources that are required to manage knowledge efficiently (Carneiro, 2000). Tiwana (2001) argued, "Knowledge must drive strategy, and strategy in turn must drive knowledge management."

Importance of knowledge in strategy formulation:

Looking at holistic business perspective is very important to assess the role of knowledge in strategy formulation. Organizations develop and formulate strategies to achieve the maximum economic value (Snyman & Kruger, 2004). Organizations have to create new needs and value to satisfy their stakeholders. Different types of strategies formulated in organization. Cost leadership strategy is the example of strategy. Cost leadership strategy organization; produce cheap goods of same quality than its competitor. Zack (1999) acknowledge to work of porter in developing strategies, which provides base line for strategy formulation. Strategy started to encapsulate learning. Strategy started to encapsulate learning. Tapscott (2001), in elaborating on the evolution caused by the Internet, promotes new frontiers in strategic thinking, arguing that: strategy provides opportunity and ability to manage knowledge, especially in a knowledge-rich economy, is becoming critical to strategic management due interdependency between strategic management and knowledge management. Developing a comprehensive framework about knowledge and strategic management, specific context knowledge is required. Tiwana (2000) describes in his study that knowledge and strategy drives together because due to interdependency. Snyman and Kruger (2004) write that all strategy formulation models, compatibility with external & internal environment. Knowledge based on exploitation of capabilities. For the successful execution strategies, knowledge must share among employee of organization.

The role of knowledge in assessing the organization's environment:

As the environment changes and business evolves, knowledge will continue to affect and/or even alter the way strategy perceived. An example of knowledge altering the way strategy perceived seen in ICT innovation. It is not only enabling strategists to add more knowledge to the process of strategy formulation, but also to 'virtually' collapse the external environment into the organization's value chain. Systems developed to shift data and information between value chains partners become strategic management tools with the capacity to supply strategists with crucial information regarding strategy formulation. As in strategic management, knowledge is crucial to performance management. The interdependency between knowledge management, strategy, tactics and performance management strongly supported by studies conducted by SAM Research and Hewitt Associates,

Knowledge management strategies and Issues

Knowledge means different thing to different people. Knowledge plays a critical role in formulation of winning strategy. Organizations have to should take more decision to optimum utilize the knowledge than managing traditional resource (Zack, 1999). Earl 2001 describes that organization well known about the importance of knowledge but they do not know how to utilize this knowledge. Complexities in knowledge are hurdle in managing knowledge (Darroch & McNaughton (2002). Zack (1999) defines "knowledge management is a managerial activity which focuses on creating new application of information technology to capture, store, retrieval and distribution of knowledge in organization". Earl (2001)define the knowledge management " It is the application of information technology but knowledge management Endeavour are concerned with both explicit & implicit knowledge and internal & external knowledge, and goes on to say encompass what some may see as information system". Zack (1999) describes that only few organizations are managing tacit knowledge. Knowledge management provided holistic approach of management (Ndlela & du Toit 2001). Darroch & McNaughton "knowledge management is the function of management that create knowledge, manage the flow of knowledge within the organization and ensured that knowledge is effectively and efficiently manage for long run benefit of organization". Laudon & Laudon (2004) describes that "it is the set of process developed in an organization to create, gather, store, transfer and application of knowledge" knowledge management is relate to technology, process, it relate to people who manage it. Knowledge management is custodian of organization learning. Zack (1999) conducted a research about the knowledge management effort about what knowledge should be managed and develop, he conclude that firm strategy provide guideline about knowledge management.

He says "a firm business strategy should reflect the role of knowledge in helping the firm to compete."Knowledge and strategy play a role to allocate resource to organizational design, product development to enhance the knowledge strength and reduce the knowledge weakness. Thomas and Cantrell (2002) describes that it is very difficult to integrate knowledge management with business strategy because problem in process, infrastructure, culture and lack of interaction between social elements and organization.Due to the uniqueness of knowledge, few companies are interested in formulation and implementation of knowledge management strategies, many issues of knowledge management exist. Planning knowledge management strategy, organizations have to focused on these issues, before assessing the efficiency of knowledge management we discuss the important issue of knowledge management briefly.

Knowledge is asset but it required investment of traditional resources for effective knowledge management. Knowledge management is expensive but without knowledge, management is more expensive (Davenport, 1998). Murray (2000) describes that cost of providing knowledge cannot be fixed, therefore it difficult for organization to allocate more resource for knowledge management. Information converted into knowledge by interpreting, understanding and visualizing human. Effective management of knowledge required combination of human and computer Hybrid environment. Henzel describes that information technology is necessary for effective development of effective knowledge management strategies. Gurteen (1998) argued that information and communication technology is channel for representing knowledge. Without comprehensive information technology, it is difficult to exploit the value of knowledge. Knowledge management politics means participation of managers in politics because it is good business practices. Manager who cleverly understands the situation they focus on knowledge management politics. They need lobby for better implementation of and utilization of knowledge in organization (Davenport, 1998). Knowledge management needs commitment to change attitude and behavior for effective use of knowledge management (Toit, Ndlela, 2001). Responsibilities of collecting, categorizing, knowledge oriented infrastructure and evaluation of knowledge given to knowledge expert.

Taylor, Small (2000) and logan (2001) proposed that institutionalizing of knowledge management required separate department and team. Another critical issue of knowledge management is people are not willing to share their knowledge. Knowledge individual are most valuable resource. Davenport says, "Knowledge work process is not addressed well to improve the knowledge management. External environment is changing rapidly; therefore, organization changes its market focus, technologies, strategies and management approaches. Today's innovative knowledge will become core knowledge of tomorrow. Therefore, continuous efforts are required to manage knowledge. Knowledge management should be aligned with business strategies. Knowledge management required culture, support of top management and discipline which play a role in sharing of knowledge in organization. Knowledge management must enable with business and human process. Knowledge management depends on compelling technology. Knowledge management required extended- enterprise scale and scope. Ndlela and du Toit (2001) describes in their study that key elements of knowledge management are people, therefore organizational culture play a critical role in effective knowledge management. Even establishing a friendly supportive knowledge management culture is important effective factor for knowledge management. Von Krugh (2001) describes in his study that successful knowledge management required top management commitment. Top management should concede that knowledge management and creativity has strategic importance. Snyman and Kruger (2004) proposed that "certain principle not only from the basis for developing and organization knowledge vision, but in order to encapsulate them in a way that organization should also embark on the formulation of knowledge policy". Objectives, target and action for achieving knowledge success should not be negotiable; they provide governance in formulation of knowledge management strategies and business strategies. Creating knowledge vision is right direction for knowledge management. Manville and Foote (1996), Kruger (2004) proposed that don't mix the knowledge base strategies and organizational knowledge management strategies. Knowledge base strategies are actual business strategies. Knowledge management strategies are knowledge base strategies but knowledge base strategies are not knowledge management strategies. Knowledge future vision and knowledge management strategies both establish knowledge culture in organization. Knowledge policy aligned with needs of organization about the specific knowledge needs to enhance the profitability of organization. In order to achieve this, knowledge aligned with the knowledge requirements of the organization.

Corporate and knowledge management strategies as the number one success factor in all knowledge management endeavors. Strategy is the most precious point on the knowledge management agenda, the point at which knowledge, skills and information inject their greatest value into the organization. Strategies help to manage the efficient and knowledge management in assessing the nature of what is to be handled – knowledge and information, Bater (1999) proposes that organizations should formulate a knowledge strategy as a point of departure. Zack (1999) explicating the link between strategy and knowledge, suggests that the traditional SWOT

framework can provide a basis for describing a knowledge strategy. This type of analysis will reveal strategic knowledge gaps and set the stage for knowledge development strategy, that assessment of knowledge resources (internal and external) present strategists with a 'need vs. opportunity' scenario, or stated differently, a knowledge gap. Henczel (2000) maintains that three audits are required to change from information management to knowledge management, first, we indentify where knowledge exist and to whom it needed for decision-making. Zack (2001), in revisiting some of his previous statements, warns against the danger of confusing knowledge strategy with knowledge management strategies. According to Zack (2001), assessing where knowledge sources are situated, what constitutes an organization's knowledge resources, what knowledge strategically needed and what opportunities knowledge represents. Knowledge base strategies that related to business strategies and knowledge management strategies are related to managing knowledge in organization. To the knowledge gap, Zack (1999) argues that strategists can either increase knowledge in a particular area, or leverage existing but under-exploited knowledge resources. Earl (2001) argues that the line of reasoning followed by Zack in formulating a knowledge strategy, unfortunately only addresses the exploring of knowledge to support business strategy. Earl proposes that once performance gaps and knowledge opportunities identified, a realistic conceptualization emerges, enabling strategists to formulate a knowledge business vision. Management initiatives linked to business strategy. Von Krogh, Nonaka and Aben (2001), building on the work of Zack (1999), maintain that 'leveraging knowledge, relates to Zack's (1999) proposition about leveraging existing internal knowledge resources. In a similar manner, Earl (2001) proposes that in order to 'operational the knowledge strategy intent'; organizations should examine possible knowledge management initiatives. Of interest is the fact that Earl (2001) contends that different knowledge management initiatives relate to the different knowledge management schools. This statement by Earl is of the utmost importance, for it indubitably links all endeavors in knowledge management to the essence of all knowledge management issues, the need to institute and grow a knowledge culture within the organization. It noted that Von Krogh, Nonaka and Aben (2001) and Earl (2001) are referring to knowledge management strategies and not strategies to emphasise what strategic knowledge is, and why it is strategic, i.e. the knowledge strategy as proposed by Zack (1999) and Bater (1999). Not only emphasis placed on managing knowledge within the organization's domain, but also on the fact that knowledge should be managed even beyond the sphere of the organization. Referring to the institutionalization of knowledge management strategies, Zack (1999:133) asserts that; 'not only will a high level of knowledge processing be necessary, but due to the environment changing rapidly, organizations may need to create new knowledge just to remain competitive, e.g. be a knowledge explorer, creator or acquirer'. In contrast, strategies to further explore, acquire, transfer, capture, codify, share, distribute and create knowledge are managerial strategies aimed at addressing knowledge gaps, and growing the organization's knowledge culture. The strategies proposed by Von Krogh, Nonaka and Aben (2001), and the knowledge management programme proposed by Earl (2001), are therefore similar to the knowledge management strategies proposed by Zack (1999), i.e. strategies to ensure that knowledge is available (institutionalized) to answer future strategic questions about the effectiveness of organization. Knowledge exchange, Knowledge capture, Re- Use of knowledge, Knowledge internalization

In agreement with this, Laudon and Laudon (2004) argue that knowledge management strategies lead to the construction of information system applications which help the organization in knowledge creating, capturing, distributing and applying the knowledge. Although it might seem that there is considerable disagreement on the specific terms/phrases used to identify the managerial activities needed to institutionalize knowledge management strategies (strategies to explore, create, acquire, transfer, capture, codify, share and distribute knowledge). Laudon and Laudon (2004) argue that all these activities can be categorized as either addressing the creation of knowledge, or the processing of knowledge. Von Krogh, Nonaka and Aben (2001) also propose that if there is insufficient knowledge on how to solve a particular problem (a knowledge gap) subgroups within the domain should be charged Finally, Von Krogh, Nonaka and Aben (2001:424) argue that: organization has many knowledge domain,

Knowledge management maturity Model:

After a comprehension discussion about knowledge, knowledge management and managerial perspective of knowledge management, we conclude that comprehensive knowledge management practices should be including issues, policies and strategies. Knowledge management should be measured based on these issues, policies and strategies. In this chapter we develop a comprehensive framework to assess the level of knowledge management maturity in organization.

A comprehensive knowledge management required different perspective of time, resource, policies (Gallagher & Hazlett, 204). Evolutionary process of knowledge management required time and it contain different phases. Different authors built a assessment framework to measure the knowledge management during

institutionalization of knowledge management in organization. We identify the issues, which influence the knowledge management creation. Criteria about guideline of knowledge management should be selected according to specific needs of organization. Due to generic knowledge management issues, there are similarities exists among these issues. Effective knowledge management required to paid attention on people, culture, structure and information technology (Gallager & Hezlett, 2004). Kazimi and dasgupta (2004) describes that every organization have to focus on people, structure and culture to leverage its knowledge asset. Gallager and Hzlett (2004) argued that knowledge management cannot survive it own, it need the commitment of top management. Different author proposed that first step is aligning of knowledge management required establishment of knowledge management department and team. Knowledge management team required a high rank officer (Davenport, 1998).

It is the responsibility of high ranked knowledge officer to develop vision, policy for effective and efficient knowledge management. Knowledge management audit help the organization to determine what knowledge is required and where this required knowledge situated. Henczel (2000) proposed that three audit are required for an organization to move from information management to knowledge management. Therefore, developing knowledge management strategy first it is necessary to identify the place of knowledge existence, then where it required for decision-making and operation. Snyman & Kruger (2004) enforce that maintain the quality and quantity of knowledge management both in explicit and tacit form, also asses the strength and weakness of current knowledge management and organization structure. Knowledge strategy formulated based on current knowledge and knowledge needed in future. Based on initially knowledge, strategists draw synthesis between strength and weakness, opportunities and threats for aligning the knowledge management strategy with business strategy formulation. After this allocation of resources to knowledge management, made based on economic principles. In this regard further investment on knowledge management should be made on ability of knowledge management to increase the profitability and sustainability of organization. At this stage if it is found that current knowledge management is insufficient or not working properly then new and more knowledge is needed to change its future strategies and it also leads to change in information and communication infrastructure, culture, and knowledge repository. Von Krugh, Nonaka and Aben, (2001) proposed that following steps help in formulation of knowledge management strategies. Leverage knowledge throughout the organization, cultivate knowledge from current practicing and explore knowledge from partner and other organization.

This plan is called strategic knowledge management plan (SKMP). SKMP consist of detail knowledge management project, result, dates, priorities and responsibilities (Kruger, 2004). Zack (1999), Von Krugh, Nonaka & Aben (2001) are agreed with that this plan provide guide line for knowledge management process of exploring, creating, acquiring, capturing, codifying, organization, transforming, sharing, using and distributing of knowledge in organization. Darroch and McNaughton (2002) develop a scale for knowledge management orientation. Further investigate the development of knowledge; Kruger (2008) Gallaghar & Hazlett (2004) introduced the knowledge management maturity model. Kazimi, Dasgupta and Natarajan (2004) describes that there is disillusioned about the knowledge management. Authors argued that knowledge management model should not focus only technological aspect but also focus on knowledge management and as such make to ensure that firms are Well known: Kazimi, Dasgupta and Natarajan (2004) argued that despite the limitation and knowledge issue, knowledge management maturity model are progressive. Kazimi, Dasgupta and Natarajan (2004) proposed knowledge maturity model is effective tool to understanding and resolving the issues of knowledge management, organization should identify the key issues of knowledge management, develop a policy for guide line and conduct the audit of knowledge management audit to identify the knowledge asset and their application in operation. It help the institutionalized the knowledge management with the business policy and strategy.

The arguments advanced by Kazimi, Dasgupta and Natarajan (2004) argued that factors are important for well execution of knowledge management maturity model to strengthen the knowledge resource and overcome the weakness of knowledge. Ability of organization to create knowledge provides long term profitability. Therefore, it is start the knowledge management to enable the organization to enjoy the long run profit and competitive advantage. In a similar fashion, Henczel (2000) emphasizes that good information management is a prerequisite for knowledge management, and adds that no endeavors in knowledge management should be inaugurated unless efficient and effective information and communication technology is available to support them37. Information and communication technology, maturity models are best for managing and implementing of knowledge management.

Due to the interdependency of information and communication and communication technology and knowledge management organization should focused on ICT. ICT systems extend the influence of the organization beyond the borders of the organization. Systems are aimed at sharing knowledge and expertise with all stakeholders in

an extended value chain. Carefully considering that, this evolutionary process important part of ICT systems being developed to meet the needs of future, successful knowledge management possible, emphasizing an increased interdependency between ICT management and knowledge management, especially with respect to increased maturity level. Kazimi, Dasgupta and Natarajan (2004) proposed that 'today it has been realized that organizations can achieve maturity in knowledge management only coordination of technology, processes and people, therefore paying attention has been increased for knowledge management successes in the years to come'. Information Management relates with the management of information (as opposed to knowledge) and it is best way to increase capability of managing explicit knowledge. Knowledge management life cycle not only depends on the stages of knowledge acquisition, sharing/dissemination, and reuse, but also deals with the phases of knowledge management maturity. Kochikar (2004), proposed that this fourth (next) dimension in the knowledge life cycle is virtual team of system that support the knowledge all geographical areas, even beyond the boundaries of organization. Proposed Knowledge Management Model clearly describes that knowledge management strategy help the organization to determine what knowledge an organization need to formulated business strategy for effectiveness (Kazimi, Dasgupta and Natarajan, 2004).

Effective knowledge management required the efficient ICT & IM (Boon, 1990, Gurteen, 1998, Gallager and Hazlett, 2004). The mere fact that organizations exist and survive indicates that a certain amount of knowledge is available within the organization. The following are characteristic of this phase; Organizations are not aware about the importance of knowledge as strategic resource. Organizations are now focusing on more data and information. ICT maturity level helps in managing knowledge well. ICT and information management are enablers of knowledge management, due to the data-to-information cycle, a certain amount of ICT should be in place in order for information management to function optimally. In a similar manner the information-to-knowledge cycle dictates that certain information management practices can be regarded as prerequisites to successful knowledge management. Having an information management policy and strategy should be in practice.

After realization the importance of knowledge management, function of knowledge management should be formulated through the whole organization (Davenport 1998, Taylor Small and Tattalias 2000, Tiwana 2000, Logan 2001, and Laudon and Laudon 2004). Orientation of knowledge management should be determined in the organization about what kind of knowledge required for strategic resource. It should not only focus on the orientation of knowledge management but a commitment of knowledge culture is necessary.

In order to focus all knowledge management efforts, vision of knowledge management within the organization should be dealt with explicitly. ICT audit conducted, enabling managers to assess ICT's applicability to knowledge management.

In focus, developing plans and policies to establish knowledge culture within the organization. Knowledge cannot be managed in isolation within different organizational functions. Therefore, the key element of this phase should be establish a knowledge management function, knowledge domains, as well as forums to provide knowledge management with governance. The basic objective of this phase to formulation an organizational knowledge management policy on how the organization is going to manage, secure and protect knowledge as a strategic resource (both tacit and explicit); as well as guidelines on how the organization's knowledge repository should be formulated.

The next level of maturity commences with a focus on determining to what extent organizations know what constitutes knowledge resources (both tacit and explicit), where knowledge resources are situated and why resources are strategic (i.e. organizational awareness of the power vested in knowledge, and/or the importance of knowledge as a strategic resource). In order to bridge the gap between current knowledge and knowledge needed (to base business strategy formulization on), organizations at this level must be able (via the use of competitive intelligence and internal knowledge-sharing systems) to formulate a knowledge strategy and knowledge management strategies. Of importance is the realization that strategies include ICT, information management, human resource and other organizational aspects.

At this level, the goals of ICT management and knowledge management converge to continually improve processes, i.e. optimize the use of ICT with regard to maximizing the value gained from knowledge. Central to all of these strategies and plans is the quest to institutionalize knowledge and ICT systems that gradually enhance the effectiveness and efficiency of the organization's ability to explore, create, acquire, transfer, capture, codify, share and distribute knowledge. 'More of what (knowledge) goes out comes in'. In essence, this phase represents the capstone of knowledge management maturity within the organization.

As soon as organizations are capable of continually enhancing and formulating strategies to further create or process knowledge internally, the next evolutionary step involves utilizing the knowledge of the organization's partners and extended partners. To emphasize this point, Kazimi, Dasgupta and Natarajan (2004) state that

knowledge maturity will in the end be determined by how well the organization manage knowledge across all segments. This mindset requires that the organization's ICT architecture be capable of transcending the borders of the organization, i.e. capable of not only sharing data and information, but also knowledge and expertise with all stakeholders in the organization has extended value chain. However, due to cost and technological restrictions, most organizations will not easily reach or pass this point of knowledge management maturity. This time adding the sharing of knowledge access boundaries to the line of reasoning, e.g. deciding on knowledge issues applicable to all stakeholders, formulating a knowledge management policy to govern the sharing of knowledge across the extended value chain, formulating holistic knowledge management strategies, etc.

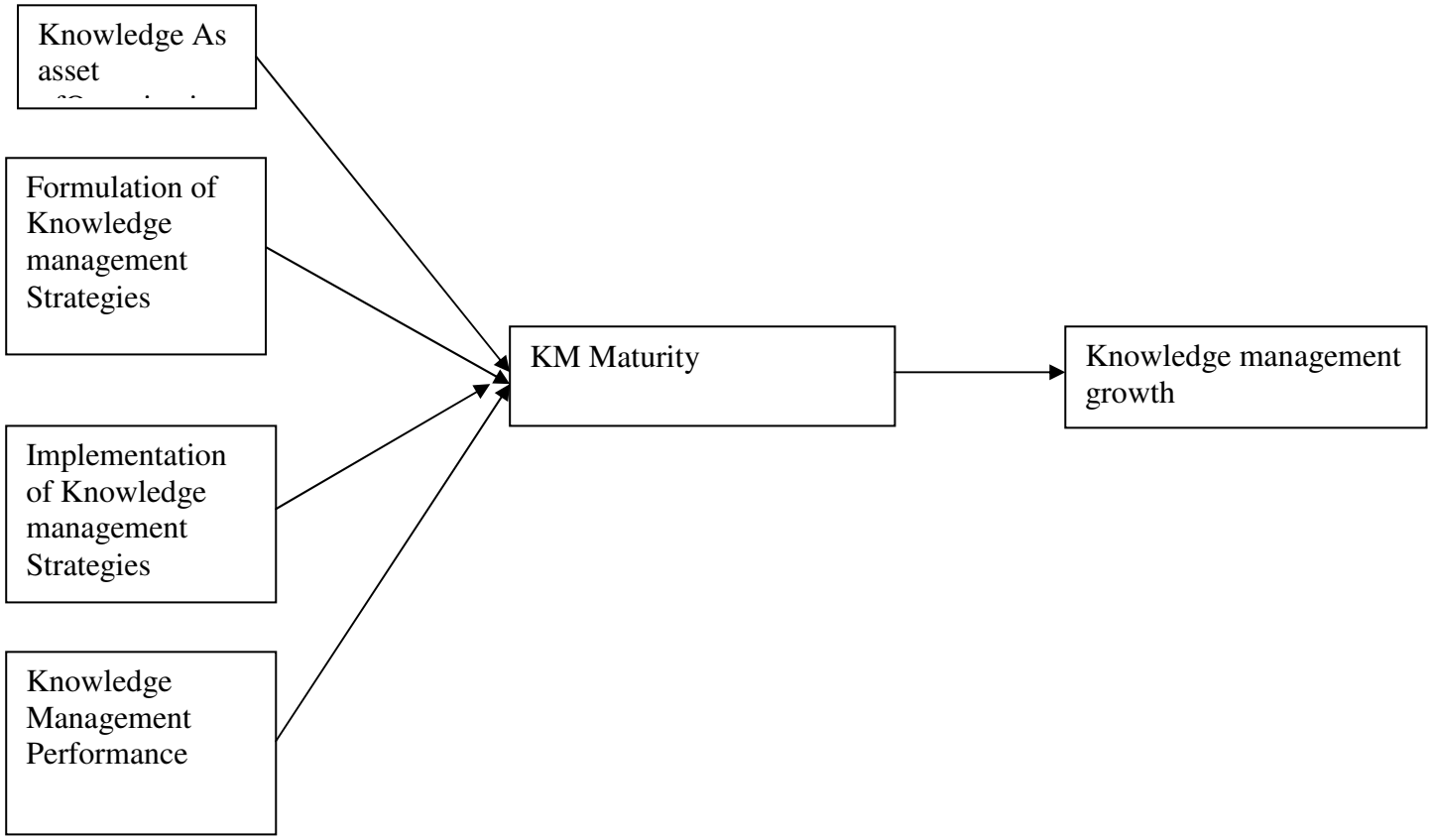
Organizations implementing knowledge management programs also have the daunting task of implementing a gamut of e-business applications. The evolution of knowledge management beyond the point of sharing knowledge between partners in an extended value chain remains a mystery. In future, if knowledge is going to regard as the organization's most precious resource, this will necessitate the sharing and trading of knowledge even beyond the borders of the organization has extended value chain. Knowledge issues, success factors, policy, and strategy need to constantly revised to adhere to changes in the organization's internal and external environment. Knowledge and knowledge management strategies should be formulated and executed in most efficient way Tiawana, 2000). Valued strategy leads to innovation (Chandler, 1962). Due to the following reasoning, the question arises whether knowledge management is enabler of both strategy and innovation. Carneiro (2000) and Leonard – Barton (1995) describes that innovation comes from knowledge, especially building new knowledge on existing knowledge. Knowledge management positively related with innovation (Jing-Wen Huang, Yong-Hui Li, 2008). Darroch & McNaughton (2002) opinion that relating knowledge management to innovation required to paid attention on knowledge management link with incremental and technological innovation.

Knowledge management positively relate with innovation. Some knowledge management process play important role than other in different types of innovation. Knowledge about marketplace has positively related with incremental innovation. In the strategic management process, knowledge is the catalyst and knowledge management the enabler. Knowledge management is capable of dramatically (via knowledge exploration and exploitation) speeding up this evolutionary process of strategy formulation. The relationship between strategy formulation, knowledge management (knowledge exploitation and knowledge exploration) is therefore a tightly woven net of decision making Strategy is therefore, as Mintzberg and Lampel (1999) rightly state: "spurts of innovation (knowledge exploitation) followed by cycles of imitation and consolidation (knowledge exploration)".

In following this line of reasoning it is argued that profitability over time is a derivative of the quality of the organization's knowledge management endeavors (knowledge exploration feeding exploitation), whereas growth represents gain in quantitative measures

An evolutionary methodology with regard to the progression of knowledge management in an organizational setting was proposed. It argued that certain issues, policies and strategies are crucial to effective and efficient knowledge management. The gist of the chapter was the proposition that when knowledge management issues institutionalized in chronological order, the more strategically evolved organizations becomes, the more they are able to turn tacit knowledge into explicit knowledge, progressively enabling them to exponentially exploit the power vested in knowledge.

Proposed Research Model



After conducting the comprehensive literature review, we propose the following hypothesis.

H.1: Knowledge as asset has positive impact on knowledge management maturity.

H.2: Formulation of Knowledge management strategies has positive impact on knowledge management maturity.

H.3: Implementation of knowledge management strategies has positive impact on knowledge management maturity.

H.4: Knowledge management performance has positive impact on knowledge management maturity.

H5: Knowledge management maturity has positive impact on knowledge management growth. .

Methodology:

After conducting a comprehensive literature review, it is necessary to bridge the gap between theory and practice to provide practical roadmap for institutionalizing the knowledge management in organization. Literature review provides the theory information about the role of knowledge in organization as strategic resource. There is interdependency between the knowledge, knowledge management and strategies. It is important to understand the issues, policies and model of knowledge management for implementation in organization that help in measuring the knowledge management maturity.

Sample

Sampling is use to represents the population. Two sampling techniques are commonly use probability and non-probability. Where the statistical conclusions are draw, the probability sampling is use (Hair et al., 2003). Purposive sampling is use in this study. There are five important factors, which guide us to select the sample from population. First is to determine the goals. Second is to consider the desired precision value. Third is to determine the confidence level. A confidence level of 90% means that, were the population sampled 100

Times in the same manner, 90 of these samples would have the true population value within the range of precision specified earlier, and 10 would be unrepresentative samples. Higher confidence levels require larger

sample sizes. Degree of variability is very important for the selection of sample. It is about the attributes and concepts, which are measure in the questionnaire. To come up with an estimate of variability, simply take a reasonable guess of the size of the smaller attribute or concept you are trying to measure, rounding up if necessary. If you estimate that 25% of the population in your county farms organically and 75% does not, then your variability would be .25. Fifth factor is response rate, if the response rate is high then the sample size would be low and if the response rate were low then the sample size would be high.

Population selected for this study is Pakistani universities based on above five factors.

Instrument

This questionnaire use in this study it consists of 94 questions. This questionnaire was used by Kruger, (2008), Gallager & Hazlett, (2004), Taylor, Small (2000), Boon, (1999), Gurteen, (1998) in previous studies. Five point likart scale questionnaire used in this study. Phase 1 describes the knowledge management as asset. It has nine items. Knowledge as asset items are checked by by Boon (1990), Gurteen (1998), Applegate McFarlen and McKenny (1999), Kazimi Dasgupta Natarajan(2004), Kochikar (2004) and Kruger and Snyman (2005).and Natarajan(2004), Kochikar (2004) and Kruger and Snyman (2009). Phase 2 of the questionnaire provides information about the enablers of knowledge management i.e. information management with eighteen items which are use by Davenport (1998), Mitre cited in Taylor, Small and Tatalias (2000), Logan (2001) and Kruger and Snyman (2009). Phase 3 describes formulation of knowledge management strategies. It has eighteen items and it is previously use by Davenport (1998), Gurteen (1998), Mitre cited in Taylor, Small and Tatalias (2000); Gartner in Logan (2001) Laudon and Laudon, (2004) and Kruger and Snyman (2009). Phase 4 involve the implementation of knowledge management strategies and has twenty eight items. This questionnaire is use by Orna (1998), Zack (1999); Bater (1999); Ndlela and du Toit (2001) Kazimi Dasgupta and Natarajan (2004) and Gallagher and Hazlett (2004) and Kruger and Snyman (2009). This phase consist of conducting knowledge audit in organization. Phase 5 revolves the performance of knowledge management with twelve items and it previously use by Zack (1999); Bater (1999), Pearce and Robinson (2000); Von Krogh, Nonaka, and Aben (2001), Lauden and Lauden (2004) and Kruger and Snyman (2009). Phase 6 involves the knowledge management growth. It has nine items, which previously use by McFarlen and McKenny (1999), Kochikar (2004), and Kruger and Snyman (2009). Reliability and validity of Knowledge Management assessment questionnaire tested with survey, which conducted in Canada by public management services (2007). Due to the sensitivity and some restriction, only volunteer employees selected to participate in this research. Five point likert scales used to measure the degree of agreement from respondent. However, the pilot study conducted to check the reliability the validity of this questionnaire in current scenario.

Data Analysis & Discussion:

Data analysis part describes the interpretation and results of study. Different statistical tools are used in this study.

Correlations Among Variables

Variables	Mean	Std Dev	KAA	FKMS	IKMS	KMP	KMM	KMG
KAA	3.6563	0.43354	1					
FKMS	3.5617	0.60812	.303**	1				
IKMS	2.9385	0.43741	.345**	.626**	1			
KMP	3.5545	0.50385	.419**	.254**	.291**	1		
KMM	3.4619	0.35204	.775**	.735**	.717**	.633**	1	
KMG	3.6904	0.62956	.366**	.270**	.200**	.463**	.437**	1

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

Table 1 describes the correlation among variables of study. Table shows that there is significant positive correlation (.30) between variables knowledge as asset and formulation of knowledge management strategies. Correlation between knowledge as asset and implementation of knowledge management strategies is .345 which is positive and significant. Correlation among knowledge as asset and knowledge management

performance is .41, which is again significant and positive. A more significant and positive correlation (.77) is between knowledge as asset and knowledge management maturity. Positive correlation between knowledge as asset and knowledge management growth is .36. There is positive and significant correlation (.62) between formulation of knowledge management strategies and implementation of knowledge management strategies. Positive correlation (.25) exists between formulation of knowledge management strategies and knowledge management performance. A Strong positive correlation (.73) is between formulation of knowledge management strategies and knowledge management maturity. Correlation between formulation of knowledge management strategies and knowledge management growth is .27. Positive correlation (.29) found between implementation of knowledge management strategies and knowledge management performance. Correlation between implementation of knowledge management strategies and knowledge management maturity is (.71) which is significant and positive. Correlation between implementation of knowledge management strategies and knowledge management growth is (.20) which is significant and positive. A strong and positive correlation (.63) exists between knowledge management performance and knowledge management maturity. Knowledge management performance and knowledge management growth has positive correlation (.46) each other. Correlation between independent variable knowledge management maturity and dependent variable knowledge management is .43. Correlation table indicates that all variable in this study has positive correlation each other.

Structure Equation Modeling

Regression Weight and Hypothesis testing of Structure Equation Model

Variables			Estimate	S.E.	C.R.	P	Label
KMM	←	KAA	.463	.006	58.322	***	Supported
KMM	←	FKMS	.372	.005	41.489	***	Supported
KMM	←	IKMS	.245	.007	26.759	***	Supported
KMM	←	KMP	.273	.005	35.082	***	Supported
KMG	←	KMM	.437	.080	9.813	***	Supported

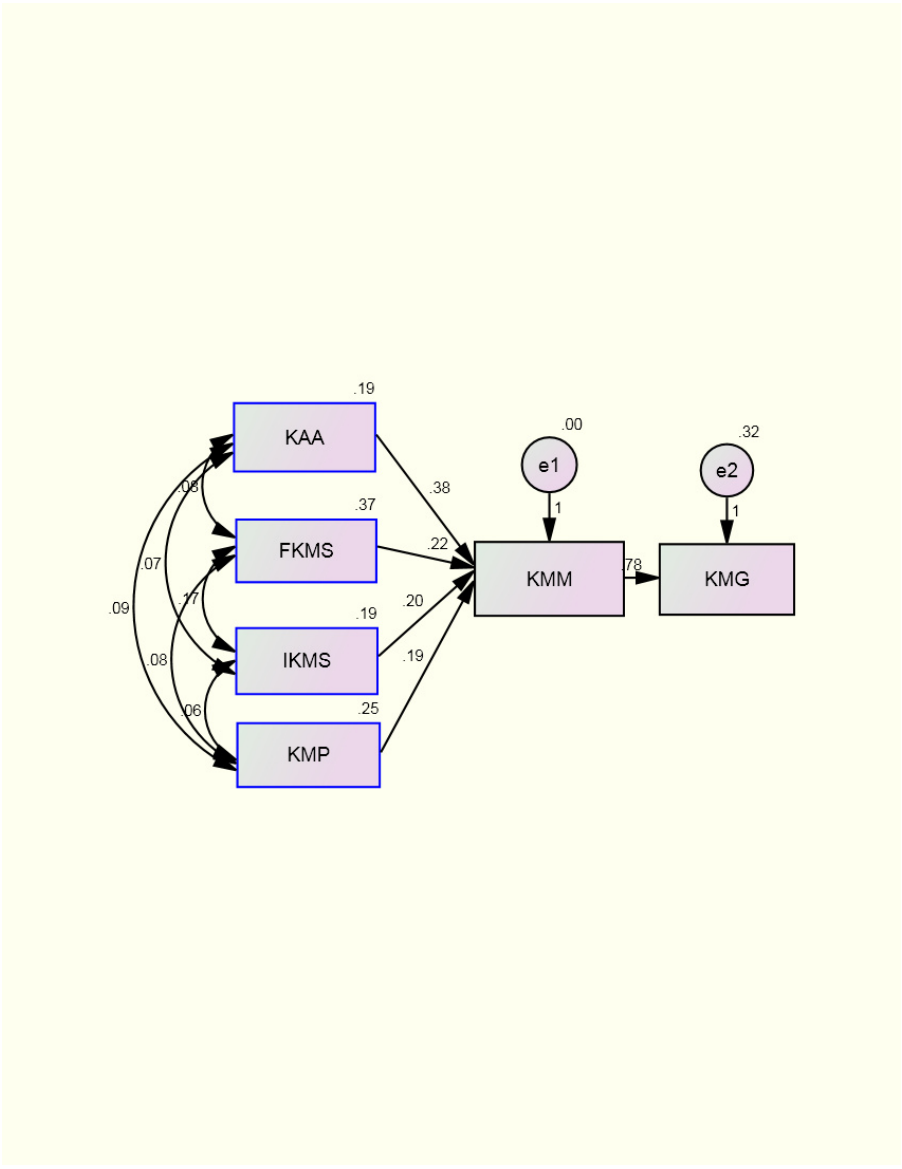
Table 2 describes the regression weight and hypothesis. Hypothesis 1 referred to Knowledge as asset (KAA) has positive impact on knowledge management maturity is significant and positive. Value of standardizes estimate between knowledge as asset (KAA) and knowledge management maturity is .463 and p value < .05 which indicate that H1 is accepted. H2 formulation of knowledge management strategies has positive impact on knowledge management maturity accepted because standardized estimate value is .372 which is acceptable and p-value <.05. H 3 Implementation of knowledge management strategies has positive impact on knowledge management maturity accepted having estimate value of.245 with the p value < .05. H4 knowledge management performance has positive impact on knowledge management maturity is also accepted because it has significant positive estimated value .273 and p value <.05. H5 between knowledge management maturity and knowledge management growth is also accepted because its estimated value is .437 which is significant with p value< .05. So above table describe the regression weights and hypothesis testing. Result shows that all hypothesis are accepted having the positive value.

Model Fit

X^2	df	p-value	x^2/df	RMESA	CFI	TLI	NFI
42.207	4	.000	10.55	0.068	0.98	0.93	0.99

Table 3 describes the structure equation modeling (SEM) and model fit of the study. After conducting the confirmatory factor analysis to measure the goodness of fit indices according to the criteria. To check the goodness of fit model discussion of important baseline are very important. Important model fit indicators are normal fit index (NFI), incremental fit index (IFI), Tucker Lewis index (TLI), root mean square error of approximation. Jeremy and Hum (2009) describes that not only chi- square (X2) measure the overall model fit. Chi-square is most common use model fit index but it depends on the sample size. Brown suggest that CFI, GFI, & TLI are use for overall model fit.CFI, GFI, TLI are depend on the average size of correlation in data. HU & Bentler (1999) suggested that RMSEA should less than .06 to .08, TLI>.90, CFI> .90 and standardized root

mean square residual <.08. Yu suggested that these cutoff values are reasonable for model fit. MacCallum (1996) also support these values and suggested a baseline for goodness of model. Structural equation modeling is statistical technique which is considered most comprehensive tool for test the model and hypothesis. The strength of SEM is that it measures the effect of error to test indirect and total effects rather than testing the simple direct effect. Due the strength of SEM, AMOS 18 version is used in this study. Maximum- likelihood estimation technique is use to analyze the data. The guideline provided by Hair, Anderson, Tatham and Black (1998) are use in this study to analyze the goodness of model. Table4. 19 describe the good fit of model. Value of Chi- Square is 42.20, p< .05 and degree of freedom ratio is10.50 which favorable. The value of RMSEA = .68 which is acceptable for good fit of model. The values of CFI, TLI and NFI indices are 0.98, 0.93 and 0.99 respectively which show the significant good fit of the model. These indices represent the good fit of model. Result of the study shows that knowledge management enabler are fair institutionalized with Pakistani universities There is misunderstanding that people still considered the information management and information and communication technologies as knowledge management. Result of this study and previous research show that information management is enabler of knowledge management but not knowledge management. Most of the respondent are agree that knowledge management is strategic resource which is not transferable.



Mean of variable show that organization considered the knowledge management as strategic resource and trying to build infrastructure for successful institutionalization of knowledge management. But there is still gap in formulation of knowledge management strategies and implementation of knowledge management strategies. Finding of the study suggest that knowledge management is not at maturity level in Pakistani universities. There

is still need to focus more and more on knowledge management for achieving the knowledge management growth.

Conclusions and Recommendations:

In today competitive environment the success of organization depend on the knowledge. Organizations are successful who align their knowledge management strategies with business strategy. Alignment of knowledge management with business strategies, it increases the efficiency and effectiveness of organization. Knowledge management improve the decision making power of employees as strategic partner. Therefore, organizations are focusing more and more on knowledge management. Formulation of business strategy is difficult with out the formulation of knowledge management strategies and formulation of knowledge management strategies is also difficult with out formulation of business strategies. Unfortunately, there is no comprehensive model available to align the knowledge management with business strategy. This study provides a comprehensive model for incorporating the knowledge management with business strategy which is the main objective of study. This study provides a road map to management of university to successful institutionalized the knowledge management with business. It also describes the level of knowledge management maturity. This study describes the critical role of knowledge management play in achieving the knowledge management growth and organizational efficiency and effectiveness. Comprehensive literature review indicates the importance of knowledge management as strategic resource. Different issues and complex situation of knowledge are discussed. Formulation of knowledge management strategies are discussed that what kind of strategies should formulated. From Literature and data analysis it is proposed that the dynamic strategies should formulate to align the knowledge management with business. After formulation of knowledge management strategies, the implementation of knowledge management strategies is very important. Proposed research model is tested through structure equation modeling using AMOS. Result of the model fit show that this model is applicable and usable to indicate the level of knowledge management maturity and growth. It provides the base line for knowledge management practices. This methodological study determine the knowledge management maturity enhance the organizational performance (Mouton, 2001). To answer the question, that why knowledge management is not managed well, the reason is that most people considered the knowledge management as technology (Kruger, 2009). This describes the managerial and strategic perspective of knowledge management. The objective of the research is to provide the roadmap to successful alignment of knowledge management with business and to access the role of knowledge play in organization effectiveness and efficiency this study focused on heightening the key role of knowledge as strategic resource. Knowledge plays as enabler for formulation of strategy. Previous model are fail to encapsulate the knowledge management with business. This model derived from software engineering institute capacity maturity model which provide the successful guideline for formulation and implementation of strategies. Performance of knowledge management is mostly evaluates with innovation. Finding suggests that although knowledge management play a key role in innovation but strategic perspective of knowledge is measure with formulation of winning strategies. These winning strategies will lead the organization to achieve the knowledge management growth and organizational growth also. The objective of the study to provide the guideline the knowledge management maturity assessment questionnaire use in this study provide a bench mark for researcher to check the knowledge management maturity and growth. This study provides base line for further investigating the knowledge management. Findings indicate that Pakistani universities have extensive infrastructure for information and communication technologies and information management. Most universities understand the importance of knowledge. Universities formulate the knowledge management strategies to achieve the objective. Result indicates that in most universities implementation of knowledge management strategies is not managed well. There is need to improve the process to implement the knowledge strategies. Knowledge management performance is positive with the universities. Finding suggests that level of knowledge management performance is good but still need to improvement. Although knowledge management growth has been increase from last five years but the level of knowledge management growth is not mature. Knowledge management growth is dependent on the level of knowledge management maturity. As the knowledge management maturity, increase the growth, also increase. The maturity level between the universities attributed to gain the consistency the overall maturity of all-variable. Some universities achieve the higher maturity level for others, especially in knowledge as asset and formulation of knowledge management strategies.

Future Research Direction and Limitation:

All aspect of knowledge management maturity and growth are discussed in this study. But practical implication and analysis show that there is some gap. The limitations of the study are that only nineteen universities selected as sample and in universities, data is collected from faculty member but in future more universities and other sector also select for further investigating the knowledge management maturity. Different managerial level

employee should be select for future study. The role of human resource practices and organizational culture can checked as moderating variable to access the knowledge management maturity and growth.

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