

THE IMPACT OF KNOWLEDGE MANAGEMENT PROCESSES ON BUSINESS TRANSFORMATION AS MEDIATED BY IT AGILITY

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ABSTRACT:

This study aims to investigate the impact of knowledge management processes (KMPs) on business transformation (BT) as mediated by IT agility. The population of the study is the lecturers and employees of Mutah University with a total of 305 participants. A questionnaire is adopted to conduct the study then the data is analyzed according to SPSS modeling technique in order to determine what the level of the existing relationship between KMPs and BT as mediated by IT agility. Finally, the study concludes with main findings and recommendations are related to confirming the two main hypotheses of the research that are related to testing if there are relationships between the KMPs (represented by four surrogate measures, namely, knowledge creation, knowledge storage, knowledge sharing and knowledge application) and BT, as well as if the KMPs is related to the BT as mediated by IT agility.

KEYWORDS -*Knowledge Management, Mutah University, Business Transformation, Technology, IT Agility, SPSS Analysis.*

1. INTRODUCTION:

The Knowledge Management (KM) phenomenon has a strategic importance in developing unique capacities of organization and providing them with sustainable competitive advantage [1]. KMPs plays a potential role in contributing to the success of organizations in general and educational institutes in particular. KM also assists in achieving organizational goals by allowing know-how and expertise to be easily shared and accessed [2] as well as promoting the use of available sources of information, skills and experience [3].

Several researchers have pointed to three main processes of KM, acquisition, sharing and application [4]–[5]–[6]–[7]. The first process in most KM models is knowledge acquisition through which the organization obtains knowledge from internal and external sources [8].

The second process is knowledge sharing, which is related to the transformation or throughput phase including disseminating, storing, codifying, and documenting knowledge

[9]. The third process is knowledge application, which is considered as the output aspect of KM. it is defined as “the business processes through which effective storage and retrieval mechanisms enable a firm to access knowledge easily”. [10] Since the operations’ function plays a strategic role in building and sustaining competitiveness, manufacturing companies need to formulate operations strategies in a way that helps to implement their own corporate competitive strategies. Manufacturing competitive priorities are the ways in which an organization has the opportunity not only to compete in the marketplace, but also to choose the type of markets [11]. As well as, BT is a changing management strategy, which has the aim to align People, Process and Technology initiatives of a company more closely with its business strategy and vision. In turn, this helps to support and innovate new business strategies. For any transformation of a business or business processes, innovation is one of the key drivers. BT is achieved by one or more of: realigning the way staff work, how the organizations structured, the core product or service portfolio of the

business and how technology is used, also it can lead to developing new competencies and making better use of existing competencies. Typically, organizations go through several stages in transforming themselves:

- Recognizing the need to change and gaining consensus amongst stakeholders that change is necessary.
- Agreeing what form the change should take the objectives of the change and a vision that describes a better future.
- Understanding what the organization is changing from and what needs to change in detail.
- Designing the new organizational way of working and its support and management.
- Testing and implementing changes, usually in waves, typically over a number of years. ([http:// en.wikipedia.org](http://en.wikipedia.org)).

Furthermore, IT agility is considered as one of the important organizational capability, which helps of an organization to adapt IT capabilities in the actual changes. Generically interpret, IT agility as the ability to respond to changes in the external environment through appropriate internal adjustments, it implicitly refers to one or more of two evaluation criteria to gauge whether a firm possesses this ability. It considers an organization's ability to respond to changes in the external environment – its range of agility – or to the time required to execute this response. Agility, as a dynamic capability, reflects the ability to speedily and surprisingly detect and seize competitive opportunities. Consequently, this study aims at investigating the impact of knowledge management processes on operational performance as mediated by IT agility.

2. PROBLEM STATEMENT

KMPs refer to various knowledge-related activities that embrace knowledge creation and generation, utilization and application, storing and updating, sharing and transferring, and protection. In this study, the major challenges of KM are failure to form and develop a culture that embraces learning and use the IT, sharing, changing and improving of knowledge in an organization to enhance the Business Transformation. According to the review of previous researches and literatures, there is a lack of studying IT agility in spite of its

role to achieve BT and competitive advantage. The existing gap in our opinion, which the organizational success in sophisticated business environments, increasingly needs for IT agility as an important component. However, organisations lack a comprehensive understanding of how IT agility is used in organizations and how to leverage it to improve BT. Competition between organizations, globalization and rapid changes have led an organization to use all possibility tools, strategies, and policies that improve BT to attain the organizational goals. Agility as one of these strategies refers to a firm's ability to seize the opportunities for competitive action and regulate the necessary resources to positively influence on the BT, entrepreneurial and adaptive agility.

To sum up, this research will answer the following question:

Q. What is the impact of knowledge management process on Business Transformation as mediated by IT agility?

3. AIMS AND OBJECTIVES

The main purpose of this research is to investigate the impact of KMPs on BT as mediated by IT agility. In addition, the research seeks to achieve the following:

- 1- Investigate the direct impact of KMPs on BT.
- 2- Provide recommendations to decision makers that will help them about the research topics.

4. THE IMPORTANCE OF STUDY

This paper focuses on analyzing and investigating the university through applying agility in terms of growth, innovation and creativity. It also encourages concerned elements to look beyond the border by taking advantage of the transformation of business.

5. LITERATURE REVIEW

KMPs are represented by its fourth constituting components, namely, knowledge creation, knowledge storage, knowledge sharing and knowledge application. The focus of the study has been on Mutah university lecturers and employees. The paper takes its conceptual starting point in the three approaches: KMPs and BT as mediated by IT agility. Subsequent sections develop the hypotheses, and this is

followed by a presentation of methods and testing issues utilizing the modeling (SPSS) technique.

KM is a management tool characterized by a set of principles along with a series of practices and techniques through which the principles are introduced, the aim of which is to create, convert, disseminate and utilize knowledge, [12]. KM could be viewed as a work process, an activity, a technology infrastructure or an operational culture to manage valuable corporate assets and knowledge [13]-[14]-[15]. KM is defined as “business process, which relates to creating new knowledge and ensuring usage of knowledge within organization whenever it is necessary.” KM has been assuming increased importance due to its role in reducing production cycle time and enhancing operating efficiency [16]- [17]. Moreover, KM enables organizations to shorten their product development time, enhance employee productivity and performance, improve product quality and customer service, modernize and reengineer business processes, provide innovative products and services, and increase flexibility [17]-[8]-[18].

KM also assists in achieving organizational goals by allowing know-how and expertise to be easily shared and accessed [16] as well as promoting the use of available sources of information, skills and experience [19]. KM plays a significant role in facilitating an important process in organizations, namely, learning process. For example, effective KM could increase the amount of knowledge required for organizational members and facilitate the rapid diffusion of knowledge within the organization. [7] indicates that there is an agreement to treat KM as a group of processes that allow using knowledge as a key factor to add and generate value. Generally, there is a lack of agreement on the actual components or phases of KM.

The ability to manage BT is vital for companies to stay competitive. BT implies fundamental and complex organizational changes, not only within companies but also across the entire value chain. This can also radically change the relationship between a company and its wider economic and social environment. Typical examples of BT are outsourcing business processes, business model changes, mergers and acquisitions, or cross-functional and (inter- or intra-) organizational restructuring actions [38].

Sustainable and successful companies react quickly to changing business environments and provide innovation in terms of client offerings and organizational structures. Furthermore, the ability to predict future demands and trends, or even to create new markets, relies on the capability to execute and implement a business transformation. The transformation process is complex and time-consuming, and is influenced not only by all major core disciplines of an organization but also by its environment, such as customers, competitors, government and regulators, as well as investors. In other words, transformation always occurs within an entire ecosystem. In order to execute a successful transformation process, the management of a meta-routine is crucial.

The University obviously need the capability to adopt change, make decisions and to align their strategic goals. But equally important, to “get from strategy to execution”, the University need the capability of designing and implementing change based on the strategic direction. This is what it is called “business transformation planning”. BT Planning is a significant and essential process for effective design and management of business transformations in a changing world. The BT Framework is an approach for structured and planned change. It helps to translate the business strategy into an executable transformation portfolio. This is by defining the required BT, taking into account the various aspects of operational management: customers & services, processes & organization (including culture), information and applications and IT-infrastructure and facilities. The BT Framework encompasses a model to assure alignment in two ways: ‘strategic alignment’ and ‘business – IT alignment’.

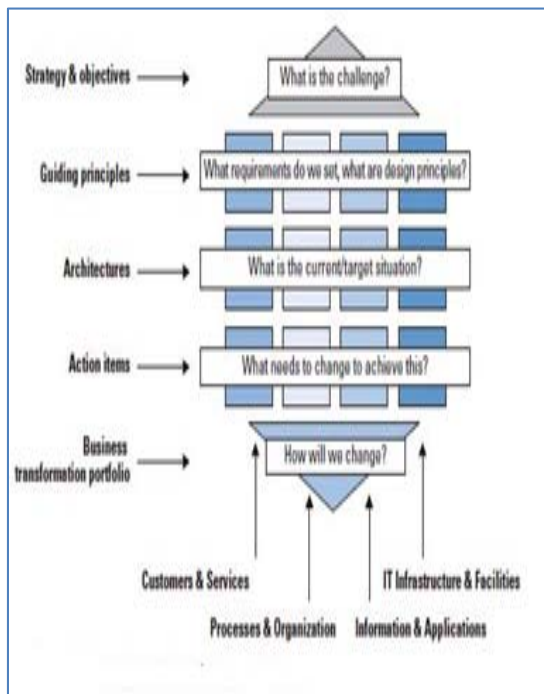


Figure no.1 The Novius Business Transformation Framework adopted by (<https://www.vanharen.net>).

Figure no.1 shows: first, ‘strategic alignment is assured using the BT Framework ‘from top to bottom’, as referring to the ‘rows’ in the BT Framework. It starts with clarifying the strategy and objectives, because a clear strategy is vital to defining the changes. To further operationalize the strategic goals, the study defines a set of guiding principles. Based on the guiding principles and an understanding of the current situation and designs the target situation. Action items refers to all kinds of activities needed to realize the required BT and to achieve the target situation. These action items are used to define the BT portfolio by grouping them into projects and programs. The BT portfolio can be seen as a roadmap in which all projects and programs are planned according to their priorities and interdependencies. Second, the ‘business – IT alignment’ is achieved using the BT Framework ‘from left to right, as referring to the ‘columns’ in the BT Framework. Each column represents an aspect of operational management. There is a distinguishing between four aspects: clients & services, processes & organization, information & applications and IT infrastructure and facilities. Clients & services is about which clients the organization wants to serve, what products and services the organization offers to them, how it distributes these, under what

conditions and to what quality or service levels. The aspect of “Processes and organization” focuses on the internal processes, organizational structures and organizational cultural. The aspect “Information & applications” is about providing optimal support for the services, processes and employees in terms of data and information systems. The last aspect “IT infrastructure & facilities” refers to what is needed for the information systems to work according to specifications, like software development platforms, application and data servers, network infrastructure, data centers, and so on. (www.vanharen.net).

Obeidat et al. [21] argued that KMPR particularly is a knowledge sharing that has been well thought-out as a major practice for all organizations either public or private. In addition, the ways in which such organizations deal and value the richness of their knowledge sharing capabilities, which in turn affect their performance are required. Therefore, the researchers suggested a theoretical model by which both transformational and transactional leadership styles influence employees’ knowledge sharing practices, and the effect of the latter on JP, and then on firm performance.

Obeidat et al. [22] investigated the relationship between HR management practices and organizational commitment, and their relationship with KMPR. In total, 220 questionnaires were distributed to consultancy firms operating in Jordan. The research that HR practices (recruitment methods, training and development, performance appraisals and reward systems) has a significant influence on organizational commitment (affective commitment, continuance commitment and normative commitment). However, the study did not find a direct relationship between HR practices and KMPR (knowledge acquisition, knowledge distribution, knowledge interpretation and organizational memory). However, more research is needed to consider the specific role of KMPs on business performance.

Al adwan [37], in her study “The Impact of Knowledge Management Processes on Workforce Agility”, tends to verify the impact of knowledge management operations on the flexibility of the workforce in the pharmaceutical companies in Jordan where quantitative methods were used to collect data and the study states that there is an effect of knowledge management processes on the flexibility of the workforce in the

pharmaceutical sector. The study recommended that senior management should adopt knowledge management processes encouraging companies to take various programs to learn knowledge management processes, and also recommended that senior management should improve their capabilities and skills through knowledge management training programs.

Arbabi, et al. [39], In their article “The Effect of Knowledge Management on Organizational Agility in Zahedan Social Security Organization”, examine the relationship between knowledge management and organizational agility. The study used analytical styles and the average test results showed that there was good agility of the mean while regression results showed the dimensions of knowledge management with organizational agility and significant.

This study presents a new conceptual framework highlighting agility’s enablers and their direct/indirect effect on firm’s performance. Based on a systematic literature review, it identifies the main agility’s enablers groups (IT, process, knowledge management, innovation, organization structure, human resources), and the characteristics of an agile enterprise (speed, flexibility, awareness, responsiveness, integration and competency). In addition, it focuses on the proposed IT framework, the impact of IT besides the complementary effects of the other agility’s enablers, fostering organizational agility and thereby enhancing firm performance.

Kanaan & Gharibeh[40] focus on knowledge sharing capability, which has been labeled as one of the most important segments in the field of KM. The researchers investigate the impact of knowledge sharing enablers on knowledge sharing capability, and firm performance mediated by innovation capability. By applying SEM analysis, the study finds that knowledge sharing enablers (i.e. enjoyment in helping others, top management support, organizational rewards and ICT use) have significant influence on employees’ knowledge sharing capability, while knowledge self-efficacy does not. Further, the study has not found a direct relationship between knowledge sharing capability and firm performance, whereas causal links have been founded between knowledge sharing capability and innovation capability, and innovation capability and firm performance. IT

competencies are vital for firms to sense and appropriately respond to business opportunities and challenges. However, the volume of information that needs to be processed leading to understand the intricacies of opportunities and challenges really demands that IT competencies help organize data. In particular, IT-based statistical tools are required to analyze, interpret, and predict how various opportunities and challenges might affect the firm and its competition. Moreover, IT-based communication tools can organize external information exchanges to support coordinated actions facing of opportunities and challenges. By enabling real-time feedback from customers, IT-based social media tools offer filtering capabilities that organize customer opinions, leading to better anticipation of changes in market needs. Wixom and Watson [23] emphasize that IT-based decision support systems and data warehouses help firms monitor data in real time, recognize patterns, and simulate strategic scenarios. Overall, IT competencies enable firms to sense and interpret business opportunities and challenges.

Yet, IT competencies also enable firms to respond to opportunities and challenges, whether those responses are proactive or reactive in nature. Proactive responses, which lead to entrepreneurial agility, involve the ability to organize business processes to seize potential opportunities. Several aspects of IT infrastructure (e.g., IT planning capabilities) and IT skills (e.g., IT human resources) help firms foresee a wide range of IT-enabled scenarios and rapidly respond to opportunities, both of which are aspects of entrepreneurial agility. For example, Vert Market scan proactively built a sense of community in its marketplace by regularly creating and updating downloadable libraries of white papers, electronically disseminating libraries to market participants, and organizing industry event calendars (e.g., www.vertmarkets.com, retrieved on March 2009).

Knowledge is the core competence required to face business challenges of firms. Therefore, companies should not only acquire critical knowledge from both the external market and from their own internal organizations [25], but should also effectively and efficiently manage the knowledge stored within both the organization and individuals in order to enable the firm to generate, communicate, and leverage

its intellectual properties [26]. In other words, firms should equip the ability to accumulate critical knowledge resources and manage their assimilation and exploitation [27].

In the presence of hypercompetitive, complex, uncertain and rapidly changing environment, knowledge management (KM) becomes one of the most interesting and important concepts in management. Previous studies [1]-[22]-[28]-[29] show that knowledge's importance, as part of the organizational assets, is increasing, as it has a positive effect on gaining competitive advantage and improving innovation that lead the organization to a superior performance.

From our point of view, Knowledge management can be defined as the set of techniques, tools and human resources used to create, manage, maintain, disseminate, and invest knowledge at work, which are closely linked to effective decision-making processes in enterprises. Knowledge management can be measured in three dimensions: First: The technological dimension includes the use of search engines, programs, applications, databases, algorithms and networks. Second: the logistical dimension includes how to acquire, manage, control, store, publish, promote, and reuse knowledge. Thirdly, the social dimension includes knowledge sharing between individuals and groups to contribute to the dissemination of knowledge and experience.

The transformation of business requires the provision of an IT infrastructure that enables organizations to work and cooperate in light of the external and internal changes to cope with the intensity and strength of the external competition of the institution itself, which contributes to the re-engineering of operations within the institutions and the organization of the employees' work, which is reflected in performance.

IT agility is a tool to measure the efficiency and effectiveness of an IT infrastructure used by enterprises, in order to take advantage of opportunities and avoid any threats, and improve the speed of movement and focus on a hybrid IT environment. The agility of information technology faces many challenges, the most important of which are: First: the balance of using information technology in

institutions according to their administrative levels, where excessive use of the level causing problems at another level. Second: The changing of standards, processes and applications applied in institutions and their relation to the resistance of institutions.

Berghaus & Back [30], explain that digital transformation is a technology-induced change on many levels in the organization that includes both the exploitation of digital technologies to improve existing processes, and the exploration of digital innovation, which can potentially transform the business model. Digital innovation, which is defined as the re-combination of digital technologies and physical components to create novel digital products [31], can be perceived as potentially threatening to the organization [32]-[33].

Digital innovation involves transformational changes in strategy, processes, and products and thus requires the company to rethink its organizing logic [31]. The growing importance of digital technology of organizations is also reflected in the alignment between IT and business, specifically in the integration of IT-strategy and business strategy in a common digital business strategy [34]. While a digital strategy consolidates and aligns the IT- and business-strategy. A digital transformation strategy contains the vision, planning, and implementation of the organizational change process [35]. Digital transformation simultaneously affects multiple areas within an organization and there are many stakeholders involved in defining a transformation strategy, e.g., marketing, IT, product development, strategy or HR. All of these elements need to develop a common understanding of the prioritization of digital transformation activities. Furthermore, digital transformation has different effects in different industries. Those with a strong customer orientation and business-to-consumer (B2C) relation may experience the influences of the digital age earlier and with a greater impact than organizations with a prevailing business-to-business (B2B) focus.

Sharifi & Zhang [36], emphasizes that agility comprises two main factors, they are:

- Responding to change (anticipated or unexpected) in proper ways and due time.

-Exploiting changes and taking advantage of them as opportunities.

Indeed, the senecessitatea basic ability to sense, perceive and anticipate changes in the business environment of the company. An agile manufacturer, in this way, is an organization with a broad vision on the new order of the business world, and with a handful of capabilities and abilities to deal with turbulence and seize the advantageous side of the business. Until now, the proposals towards becoming agile andthe characteristics defined for an agile manufacturer are more or less expressed in a Utopian way.

6.RESEARCH MODELAND HYPOTHESESE

Based on the above discussion and review of the available literature, this study proposes the following research model (Figure no.2).

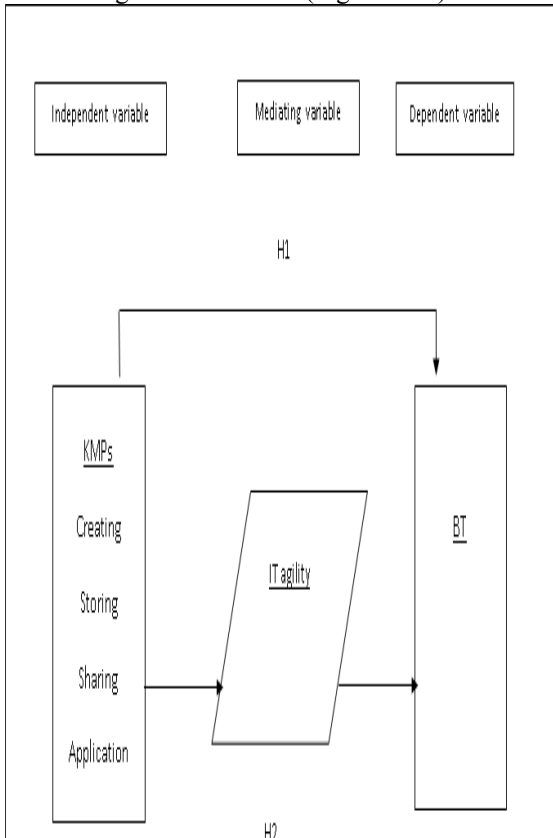


Figure no.2 Research Model.

H2. KMPs have an indirect significant impact on BT as mediated by IT agility.

7. RESEARCH METHODOLOGY

7.1 Data Collection Method and Sampling Framework

Research methodology involves describing, explaining and predicting phenomena in addition to the research plan. A quantitative survey was used to collect the necessary data. The study population includes all employees of Mutah University. A convenient sampling technique was used to select the participants. 330 questionnaires were distributed. 305 questionnaires were received and analyzed. (See table1).

Table (1)Sample Characteristics

Personal Information		Frequency	percent
Gender	Male	141	46.2
	Female	164	53.8
Age	Less than 30	33	10.8
	30-40	110	36.1
	41-50	105	34.4
	More than 51	57	18.7
Education Level	Secondary School	35	11.5
	Diploma(college) degree	89	29.2
	Bachelor's degree	95	31.1
	Higher degree	86	28.2
Experience	Less than 5 years	15	4.9
	5-10 years	62	20.3
	11-15 years	85	27.9
	More than 16 years	143	46.9
Total		305	100%

H1. KMPs have a direct significant impact on BT.

Table (3) Test the validity of the model

Model		Sum of Squares	DF	Mean Square	F	Sig.	R ²
1	Regression	61.218	1	61.218	132.767	.000b	0.305
	Residual	139.711	303	.461			
	Total	200.929	304				
2	Regression	94.154	2	47.077	133.151	.000c	0.469
	Residual	106.775	302	.354			
	Total	200.929	304				

a. Dependent Variable: Transformation, b. Predictors: KMPS, c. Predictors: KMPS, Agility

As shown in table (3), the value of (f) is= 132.767, 133.151 respectively, and it is larger than value of the critical (f) and it is significant at (0.05) level, which indicates that the model is valid to the regression test. Also, the result shows that KMPs explain (30%) of the total variance of dependent variable (business transformation), whereas KMPs and IT agility explain (46%) of the total variance of dependent variable (business transformation).The multiple regression therefore was used to test the hypothesis.

a. Dependent Variable: Business transformation

7.2 DATA ANALYSIS

Statistical Package for Social Science (SPSS) was chosen for the current study using (SPSS 22) software.

Reliability Analysis:

In order to ensure the reliability of the study tool, internal consistency reliability through Cronbach’s alpha test was used. According to table (2) the overall reliability value is (0.82) which is an acceptable level of reliability.

Variables	Cronbach’s alpha value
KMPs	0.94
IT Agility	0.88
BT	0.89
Total	0.82

Table (2) Cronbach’s alpha value

Hypotheses Testing:

The main goal of the study is to explore the impact of KMPs on BT as mediated by IT agility. In order to achieve this goal and come up with a result, regression analysis was used. The following section represents ANOVA and regression result.

As shown in table (4), there is a significant statistical impact for independent variable (KMPs) on dependent variable (Business transformation) with values ($t=9,45$, $sig= 0.00$). Thus, hypothesis one was supported. Furthermore, there is a significant impact for KMPs on Business transformation through mediated variable IT agility according to beta, T and Sig values. Accordingly, hypothesis two was supported.

Table (4) Regression result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.748	.185	.552	9.453	.000
	KMPS	.575	.050		11.522	.000
2	(Constant)	1.053	.177	.228	5.942	.000
	KMPS	.237	.056		4.236	.000
	Agility	.516	.053		.519	9.652

Hypothesis	Result
KMPs have a significant statistical impact on the BT.	Supported
KMPs has a significant statistical impact on the BT as mediated by IT agility.	Supported

8. DISCUSSION, CONCLUSION AND RECOMMENDATION

The research aims to identify the impact of KMPs on BT mediated by IT agility in Mutah University. On the one hand, the results shows a significant impact for the KMPs on BT, and KMPs has an influence on BT through IT agility on the other hand. This research also mainly aims to investigate and clarify the impact of the KMPs on BT as mediated by IT agility in Mutah University. Moreover, KMPs was measured by four elements including: knowledge creation, knowledge storage, knowledge sharing, and knowledge application. To sum up, the research found that KMPs had a significant impact on BT and this result consistent with the previous research.

The research found that the KMPs had a significant impact on BT as mediated by IT agility. Particularly, this research could help Mutah University make major transformations that contribute to the organization of its core functions through the application of knowledge management programs. In addition, the process reengineering may also contribute to significant improvements in cost, quality, speed and efficient service. Therefore, the university administration must support, encourage and share knowledge at the university. On the other hand, the university management must support, encourage and share knowledge at the university. Thus, the follows are recommended: Firstly: identify and eliminate weaknesses that adversely affect BT and take advantage of all experiences

to support strengths that ensure integration through KMPs.

Secondly: encourage cooperation between management and employees to achieve the process of transforming the work and keep pace with internal and external changes using modern technological methods, artificial intelligence systems and expert systems.

Thirdly: adopting a strategic approach of transformation through the university's continuous alignment with its strategic plan to add a new competitive advantage to other Jordanian universities.

9. STUDY LIMITATION

There is a huge number of constraints that faced the researchers through processing this study as follow:

1. This study was only limited to (Mutah, University).
2. Employee orientation, perceived knowledge, and employee satisfaction were the only parameters of this study.
3. The study was tailored to employees and students from business school.
4. Logistic support including financial, administrative, and transport deterrents barricaded the expansion of the population and the inclusion of more parameters in the study.

10. FUTURE WORK

The researchers denote that future study would be best targeted at the following dimensions:

- 1- The expansion of study population to include many universities to reach a credible level of the parameters of investigation that reflects the actual consensus of universities 'communities either academic or professional throughout Jordan.
- 2- Investigating other factors and parameters that might affect enhancing the quality of the work and facilitate the process of sharing knowledge through the organizations.
- 3- Utilizing technology of communications in a credible sense to facilitate surveying and questioning of the target population in the future researches. Social media software advances and online university services could make that approach easier for future researchers to investigate their concerns in a fashion that is credible, cheap and quick.

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