

THE PROSPECT OF ADOPTING KNOWLEDGE MANAGEMENT IN PUBLIC SERVICE ORGANISATIONS: EVIDENCE FROM A DEVELOPING COUNTRY

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ABSTRACT

Knowledge Management is relatively a new field in strategic management. As a management tool, knowledge management is gradually getting popularity in public sector organisations especially in the developed countries. Some developing countries have also started following the footsteps of their developed countries' counterparts by adopting knowledge management (KM) in the public sector organisations (PSOs). As PSOs are the most knowledge centric organisation that creates and utilises more knowledge than other organisations, managing knowledge is really important in delivering quality service to the citizen of a country. Thus this research is conducted to determine the overall prospect of adopting and implementing knowledge management in the developing country like Bangladesh, which has recently been promoted to a lower-middle income country from the lower income country according to the World Bank classification. The prospect is analysed by measuring the current usage of KM in four public sector departments of Bangladesh, assessing the future chance of adopting KM in these organisations, evaluating the perceived benefits of adopting KM among public service administrators in this country, and recognizing the perceived barriers of implementing KM in the PSOs of Bangladesh. Overall fifteen perceived benefits and eleven barriers are identified in adopting and implementing KM. This research also identifies that although the current usage of KM in PSOs are very limited, but the administrators are well aware of the benefits that KM can bring in their organisation and shown a great deal of urgency in adopting and using KM in near future.

Keywords: Knowledge Management, Public Sector Organisation, Best Practice, Strategic Management, Knowledge Management Systems.

INTRODUCTION

Knowledge management (KM) is a managerial science and strategy of making the organisation self-dependence, innovative, productive, collaborative and connected with the people. Although KM has gained popularity in many private organisations, but its practice in PSOs is way behind. Although many European developed countries are using KM in the public sector for some time being, but its exercise is still limited in the developing countries. In the academic arena, most of the KM research on public sectors are based on developed countries prospect. Thus this research is conducted to fulfil some literature gap on KM in public sector organisations of the developing countries, especially in lower income or lower middle income developing countries prospective.

According to the World Bank group, Bangladesh is one of the lower-middle income developing country (Raihan, 2016). From 2010, this country has managed to maintain the

GDP growth rate over 6% every years. In 2016 the growth rate of Bangladesh was staggering 7.1% (World Bank, 2017). Within less than 50 years of independence, Bangladesh has been promoted as one of the next eleven (N-11) countries according to the Goldman Sachs report of 2005 (Euromonitor, 2008). The vision of the current government of Bangladesh is to develop a middle income, technology dependent, 'Digital Bangladesh' by the year 2021. Since, the government of Bangladesh is concentrating to develop the technology dependent and knowledge based economy, the government is investing heavily on developing the ICT infrastructures. Spreading internet all over the country, digitalising many public services by setting up e-governance platform, reducing the tax rate of importing the ICT products, inclusion of ICT education from the school level, providing free ICT training to the young people, establishing several high-tech park across Bangladesh are some activities of current government of Bangladesh towards the establishment of technology based 'Digital Bangladesh' (ICT Division, 2016). With alignment of Bangladesh government's aim of developing a knowledge based economy, the aim of this research is to examine prospect of adopting and implementing knowledge management in the public service organisations of Bangladesh. This aim are achieved by addressing following research objectives.

- Knowing the current state and future orientation of adopting KM in PSOs of Bangladesh;
- Distinguishing the perceived benefits of adopting KM in PSOs of this country; and
- Identifying the barriers of implementing KM in public service organisations of Bangladesh.

LITERATURE REVIEW

KM and KMS

"Knowledge Management is an ability of an organisation to use its collective knowledge through a process of knowledge generation, sharing and exploitation enabled by technology to achieve its objectives"

- Cong & Pandya (2003)

Knowledge is power, which is generated from the series of information and stored in documented form or in human mind. In the twenty first century when 2.5 Exabyte of data generated per day (Khosro, 2016), organisation decision makings are highly relied on how those data can be transformed into meaning full information. These meaning full information then gradually terns into knowledge and the series of structurally managed knowledge in a particular area can bring wisdom in an organization. Therefore in modern days the success of decision making and business operation may largely dependent on how effectively organisations can use the data to bring wisdom in it.

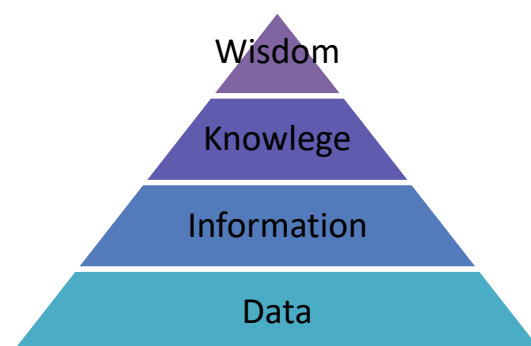


Figure 1: Continuum from Data to Wisdom

Hence the popularity of knowledge management (KM) in strategic management literature is increasing rapidly (Nonaka & Takeuchi, 1995; Becerra-Fernandez & Sabherwal, 2010). Davenport and Prusak (2000) defined knowledge, as the extensive mixture of experiences, information, insight and intuition that are used to transform and create new information and

experiences. Regarding knowledge management in public organisation, Misra (2007) stated that KM is an internal government process of improving public organisational productivity and developing sound government policies and programs.

According to the resource based view (RBV), knowledge can be the tangible or intangible asset of an organisation. The explicit knowledge which can be documented, articulated in formal language, and communicated in a formal way are the tangible assets. On the other hand, undocumented or tacit knowledge which are located in people's mind, hard to put into words, but can be transferred through socialisation, face-to-face meeting, storytelling and many other informal ways are the intangible assets of an organisation (Barney, 2000; Jain, 2009). As knowledge is valuable, rare, tough to imitate, and can be organised properly, therefore according to the VRIO framework proper knowledge management can provide sustainable competitive advantages to an organisation (Alavi & Leidner, 2001). Several researchers have pointed out that the organisational knowledge management consists of four main processes including creating and discovering knowledge from various internal and external sources, storing or retrieving those knowledge, transforming or sharing knowledge among appropriate people, and applying knowledge in the appropriate situation (Wiig, 1997; Becerra-Fernandez & Sabherwal, 2010; Alavi & Leidner, 2001; Gupta, Iyer, & Aronson, 2000). Therefore adopting knowledge management projects have three main aims and four objectives. These aims are (1) making the knowledge visible and showing the role of knowledge in the organisation, (2) developing the knowledge intensive organisational culture by encouraging people to share the knowledge, and (3) building knowledge infrastructure (Davenport & Prusak, 2000). In contrast to these three aims, the four main objectives are (1) creating knowledge repository, (2) improving knowledge access, (3) enhancing knowledge environment, and (4) managing knowledge as an asset (Devenport, Long, & Beers, 1998).

Although technologies are not the mandatory elements of managing the knowledge, but they provide support in managing the knowledge effectively. In recent years all knowledge management projects are seen highly relied on technological adoption. Knowledge management systems (KMS) are the class of information systems that enhance organisational process of knowledge creation, storage or retrieval, share and application. There are three primary roles of IT in KM, these are (i) codifying and sharing best practices of a given problem (ii) creation of corporate knowledge directory and (iii) establishment of knowledge network (Alavi & Leidner, 2001).

Previous researches identified that organisational best knowledge are inaccessible due to its tacitness and lack of individual's ambition to share the knowledge. Therefore the role of technologies are to identifying and codifying the available tacit knowledge using various technologies from various people of the organisation so that the knowledge can be kept inside the organisation, and not letting the knowledge to be wasted when the employees quit or leave the organisation. On contrary, the tacitness strategies control the outflow of knowledge to its competitors. Here technologies control the flow of knowledge to inappropriate people (Schulz & Jobe, 2001). After codifying the internal knowledge these knowledge are analysed to detect the best practices or solutions of any given problem. Thereafter the knowledge are stored in the corporate knowledge directories, so that the best knowledge can be used in future at different circumstances (Alavi & Leidner, 2001). The third role of IT in knowledge management is to develop the knowledge networks. Several knowledge networks helps an organisation to find out the various external or internal resources (i.e. knowledge workers) in suitable situations. Expert Finding Systems (EFS) also known as Expert Location Systems (ELS) are such kind of systems which are helpful in finding out experts of various subjective

knowledge (Maybury, 2006). The adoption of knowledge management not only helps the organisations to be more effective and innovative, but also it helps the employees of the organisation to be more productive by shearing and leaning various skills from others. At organisational level KM helps to treat knowledge as an asset like other tangible or intangible assets (Cong & Pandya, 2003). It aids to create new knowledge through socialisation (S), externalisation (E), combination (C), and internalisation (I) which are commonly known as SECI model (refer to figure 1). This SECI model is used to create the new knowledge from the existing knowledge (Nonaka, Toyama, & Konno, 2000).

The SECI Model

Ikujiro Nonaka & Hirotaka Takeuchi

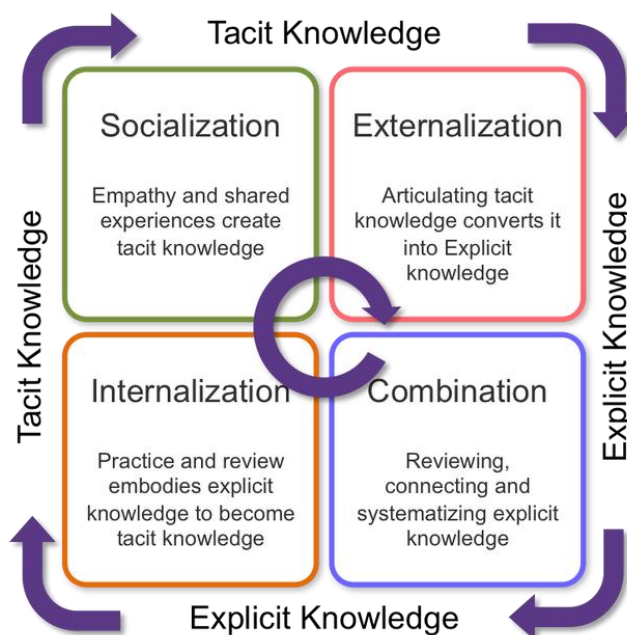


Figure 2: The SECI Model

KM helps organisations to be more productive, innovative, cost-efficient and efficient (Cong & Pandya, 2003; Carneiro, 2000). Ford motors found that sharing knowledge reduce the car development time to 24 months from 36 months and delivery time from 50 days to 15 days (Alavi & Leidner, 2001). There are different types of knowledge management systems. Among them structured knowledge systems, semi-structured knowledge systems, content management systems, knowledge network systems, lesson learned systems, neural networks, expert location systems, fussy logic, case based reasoning systems, general algorithms and intelligent agents are most popular technologies (Quizlet, 2017). Other than the technologies, factors like culture, story-telling, people, processes, communities and organizational learning are also important element of any knowledge management implementation projects (McEvoy, Ragab, & Arisha, 2017).

Necessity of Adopting KM in Public Sector Organisation

“Knowledge is the only meaningful factor of production in the “post-capitalist” society, where the main challenge will be the productivity of knowledge work and knowledge workers”

- Drucker (1993)

European Institute of Public Administration (EIPC, 2003, p. 22) have suggested that knowledge management is crucial for the PSOs as this type of organisation are highly knowledge intensive and most of the workers in this type of organisation are knowledge

workers (Butler & Murphy, 2007; Metaxiotis & Psarras, 2005). Jain (2009) has stated that the government is the largest consumer and producer of knowledge. Therefore the prospect of knowledge management is inevitable for this public sector organisations. The traditional public management culture is more bureaucratic, often do not support the recommended platform of knowledge management. The rigid hierarchical structure of public administration often creates barriers in sharing the knowledge and expertise with others (McEvoy, Ragab, & Arisha, 2017). The new public management (NPM) theories on the other hand suggest that the public organisation should prioritise more in providing services to the citizen of the country over maintaining bureaucracy and giving preference to the political needs (Lane, 2000). Thus the adoption of KM can make the PSOs more efficient, transparent, and connected with the stakeholders (Riege & Lindsay, 2006), which means by implementing knowledge management the PSOs can produce more services at lower costs, and the bureaucratic complexity also can be reduced. The adoption of KM improves the competitiveness of the public organisation in the race against private sectors and NGOs. OECD indicated that the more transparent public sectors tends to gain more external investments (OECD, 2003). Hence the adoption of KM in PSOs may increase the chance of getting external funding on various development projects. Besides adoption of KM helps the PSOs to keep the valuable tacit knowledge from leaving, transferring and retiring population inside the organisation, so that the archived knowledge can be passed to the new staffs (Cong & Pandya, 2003; McEvoy, Ragab, & Arisha, 2017; Jain, 2009). In this notion, adoption of KM also reduce the training cost of newly hired or incoming staffs as the new staffs can learn from the knowledge repositories as well as from their colleagues if the organisation practice knowledge sharing culture (Danielle Bibbo, Sprehe, & Lee, 2012). Besides, KM improves teamwork, employee learning, improves decision making, increases product and service quality, speeds up the responsiveness of people's queries, makes the PSOs more innovative, save the cost of operation, and shares best practice (Salleh, Ahmad, & Ikhsan, 2008). On the other hand, as mentioned earlier adopting ideal knowledge management systems help the PSOs to find out and track the experts of various subject areas when require. Usually as knowledge centric organization, PSOs are engaged in many development projects, when many experts from various fields require. Adoption of appropriate KMS certainly help the PSOs, in these type of project environment.

Challenges Associated in Successful KM Implementation in the PSOs

Although KM brings many benefits in organisations, but the success of a KM projects lie on the how the users share their knowledge with others. Generally people are reluctant of sharing knowledge with others unless there are some rewards or motivations. In the PSOs the situation is more acute due to bureaucratic complexity and rigid hierarchy (Butler & Murphy, 2007; Cong & Pandya, 2003; Buheji, Al-Hasan, Thomas, & Melle, 2015). Hence, researchers suggested that organisations should reward employees in sharing valuable tacit knowledge with other members of the organisation. Sharing of ideas and knowledge should have some score in annual performance evaluation, organisational storytelling should be appraised, making knowledge sharing a job requirement, and even hiring people who share knowledge can be the solution of this problem (Cong & Pandya, 2003). On the other hand researchers identified that knowledge management strategies should be aligned with corporate or organisational strategies for successful implementation (Butler & Murphy, 2007; Jain, 2009; Biswas, 2017; Danielle Bibbo, Sprehe, & Lee, 2012). Therefore mismatched KM strategies with organisational strategies can be the barrier of implementing KM in PSOs. Besides, budget constraints and lack of top management recognitions about KM are also big challenges of adopting KM in PSOs (McEvoy, Ragab, & Arisha, 2017). In this notion Salleh,

Ahmad & Ikhsan (2008) conducted an empirical survey in a developing country Malaysia and found factors like difficulties of changing employees' behaviours and attitude towards KM, concern over security of information, lack of trust among workers, lack of ICT trained staffs, difficulties to update ICT and KM technologies, lack of KM policies, emphasis on individualism over teamwork, inadequate ICT and KM infrastructures, and political interference were some challenges of adopting KM in PSOs.

Conceptual Framework and Hypothesis Development

In order to detect the barriers of implementing knowledge management in the public service organisations of Bangladesh, we have categorised the above barriers into four different categories including human resource related barriers, strategic barriers, managerial barriers and technology associated barriers (refer to figure 3). We have conceptualised these barriers have negative relation with the KM vision of Bangladesh.

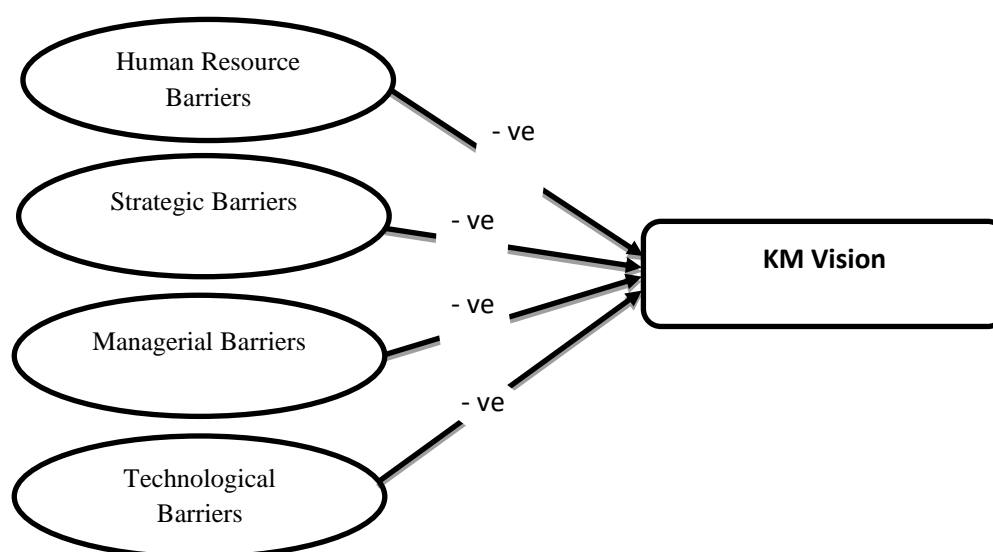


Figure 3: The Conceptual Framework of Current Studies

Here we describe KM vision is the combination of current usage of knowledge management in daily operations in the PSOs of Bangladesh and possibility of implementing KM in PSOs at near future.

Based on conceptual framework we have developed 14 hypothesises to identify the barriers of successful implementation of knowledge management in the public sector organisation of Bangladesh.

H1. Reluctance in sharing knowledge with others, is a human resource related barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H2. Lack of trust among the employees, is a human resource related barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H3. Difficulty of changing employee's behaviour towards knowledge sharing culture, is a human resource related barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H4. Emphasis on individualism rather teamwork in PSOs, is a human resource related barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H5. Inadequate KM strategies aligned with public organisational strategies, is a strategic barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H6. Insufficient KM implementation policies, is a strategic barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H7. Budget constraints of adopting knowledge management technologies, is a strategic barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H8. Lack of top management acknowledgement about KM, is a managerial barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H9. Lack of recognitions and rewards of sharing tacit knowledge, is a managerial barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H10. Political interference and pressure on management team, is a managerial barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H11. Inadequate ICT and KM infrastructure, is a technological barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H12. Difficulties in updating ICT and KM technologies, are a technological barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H13. Concern over security of information among the administrators, is a technological barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

H14. Lack of well-trained ICT staffs, is a technological barrier that is negatively correlated with the KM vision of the PSOs in Bangladesh.

METHODOLOGY

To meet the research objectives, the deductive approach of research is used. A questionnaire survey techniques are used to collect data from 120 randomly selected mid-level and senior-level government officials of four different public sector departments of Bangladesh. These respondents are located in five different districts of Bangladesh (Refer to Table 1).

<i>Table 1: Frequency Table</i>		
Department	N	Percentage
Agriculture	30	25.0
Livestock	30	25.0
Public Administration	30	25.0
Public Health	30	25.0
<i>Total</i>	<i>120</i>	<i>100.0</i>
Position		
Senior Level	67	55.8
Mid-Level	53	44.2
<i>Total</i>	<i>120</i>	<i>100.0</i>
Location		
Dhaka	29	24.2
Khulna	19	15.8
Jessore	25	20.8
Lakshmipur	21	17.5
Chuadanga	26	21.7
<i>Total</i>	<i>120</i>	<i>100.0</i>

Table 1: Demographic Data of the Respondents

A set of thirty five close ended questions were used in the survey, which helped researchers to know the demographic information of the respondents, current state of using KM, future likelihood of implementing KM in PSOs, perceived benefits and barriers of implementing KM in the PSOs of Bangladesh. One question using 5-point Likert scale (1: Never; 2: Rarely; 3: Sometimes; 4: Often; 5: Always) was used to know the level of usages of KM in the PSOs of Bangladesh. Another close ended question using the 5 point Likert scale (1: Extremely Unlikely, 2: Unlikely, 3: Neutral, 4: Likely, 5: Extremely likely) are used to know the future

likelihood of implementing KM in the PSOs of Bangladesh. A set of sixteen questions are used for weighing the perceived benefits of adopting KM in PSOs, and another fourteen questions are utilised for measuring the perceived barriers of implementing KM in the PSOs of Bangladesh. These thirty questions are coded using 7-point Likert scale to measure the critically of each factor, where 1: Strongly Disagree, 2: Disagree, 3: Somewhat Disagree, 4: Undecided, 5: Somewhat Agree, 6: Agree, 7: Strongly Disagree. Before sending the questionnaires to the respondents, a pre-test survey was conducted among 5 academics and 5 practitioners for testing the internal consistency of the questionnaires. The pre-tested Cronbach's alpha was 0.821, which suggested that the internal consistency of the questionnaires were acceptable and could provide the conclusion of the research (Tavakol & Dennick, 2011).

Data analysis are conducted using SPSS 23 and SPSS AMOS 22 software. Descriptive statistics are used to present and analyse the perceived benefits of adopting KM in PSOs. In contrary, exploratory factor analysis, confirmatory factor analysis, and structure equation modelling are used to identify the perceived barriers of implementing KM in the PSOs of Bangladesh.

RESULTS

Current and Future Trends of KM in PSOs of Bangladesh

The result presented in figure 4 suggests that the current tendency of using knowledge management in public sector organisations of Bangladesh is not great. 35.83% of our respondents suggested that their organisations never used KM in the operations, while 40.83% PSOs of Bangladesh rarely use KM in actions. Only 21.67% PSOs sometimes use the knowledge management and only 1.67% (n = 2) respondents answered that, their representing organisations often use knowledge management in the operation. The result is not surprising at all. Since, KM is a new concept and not yet widely practiced in public organisations of the developing countries, this result is not an exception.

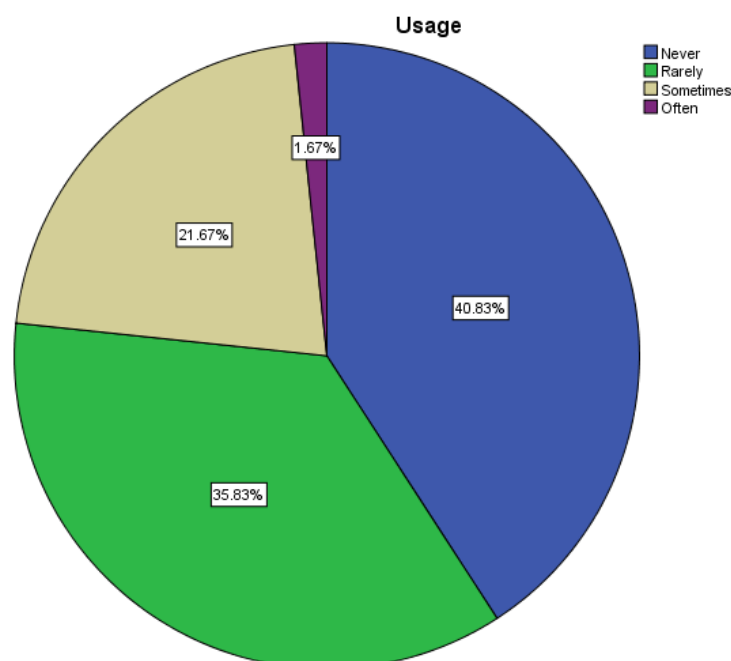


Figure 4: Usage of KM in PSOs of Bangladesh

Our findings also suggests that the public health department use KM more than other three departments, though the difference is not significance and the sample size is not large enough

to draw the conclusion(refer to table 2). The result matches with the findings of the developed countries, where knowledge management is highly used in the healthcare sectors (Morr & Subercaze, 2010).

Table 2: Usages of KM by Departments

		<i>Usage</i>				Total
		Never	Rarely	Sometimes	Often	
<i>Department</i>	Agriculture	12	13	5	0	30
	Livestock	13	12	5	0	30
	Public Administration	12	10	7	1	30
	Public Health	12	8	9	1	30
<i>Total</i>		49	43	26	2	120

Table 2: Rate of Using KM by Four Public Service Departments of Bangladesh

Although not many public organisations of Bangladesh are currently using knowledge management in daily operations, but most of these departments are looking to adopt knowledge management in near future. The table 3 below represents the likelihood analysis of the KM in PSOs of Bangladesh.

Table 3: Future Likelihood of KM Adoption by Department

		<i>Likelihood</i>				Total
		Unlikely	Neutral	Likely	Extremely Likely	
<i>Department</i>	Agriculture	1	3	21	5	30
	Livestock	1	9	13	7	30
	Public Administration	0	8	14	8	30
	Public Health	1	4	13	12	30
<i>Total</i>		3	24	61	32	120

Perceived Benefits of KM for the PSOs of Bangladesh

Although knowledge management is not widely practiced in the public service organisations of Bangladesh, but the public service administrators think that they should use knowledge more often for better decision making, increasing transparency of the organisation, keeping valuable tacit knowledge inside the organisation when employee's retire, transfer and leave the organisation, increasing organisation efficiency, tracking experts for various projects, reducing service costs, dropping training cost of newly hired staffs, increasing competitiveness of their organisations in the race against the NGOs and private sectors, making their organisation more innovative, improving the teamwork, boosting the training process, saving the cost of operations, speeding up the responsiveness of peoples' queries, connecting more with the people, and increasing the product and service quality (refer to figure 4).

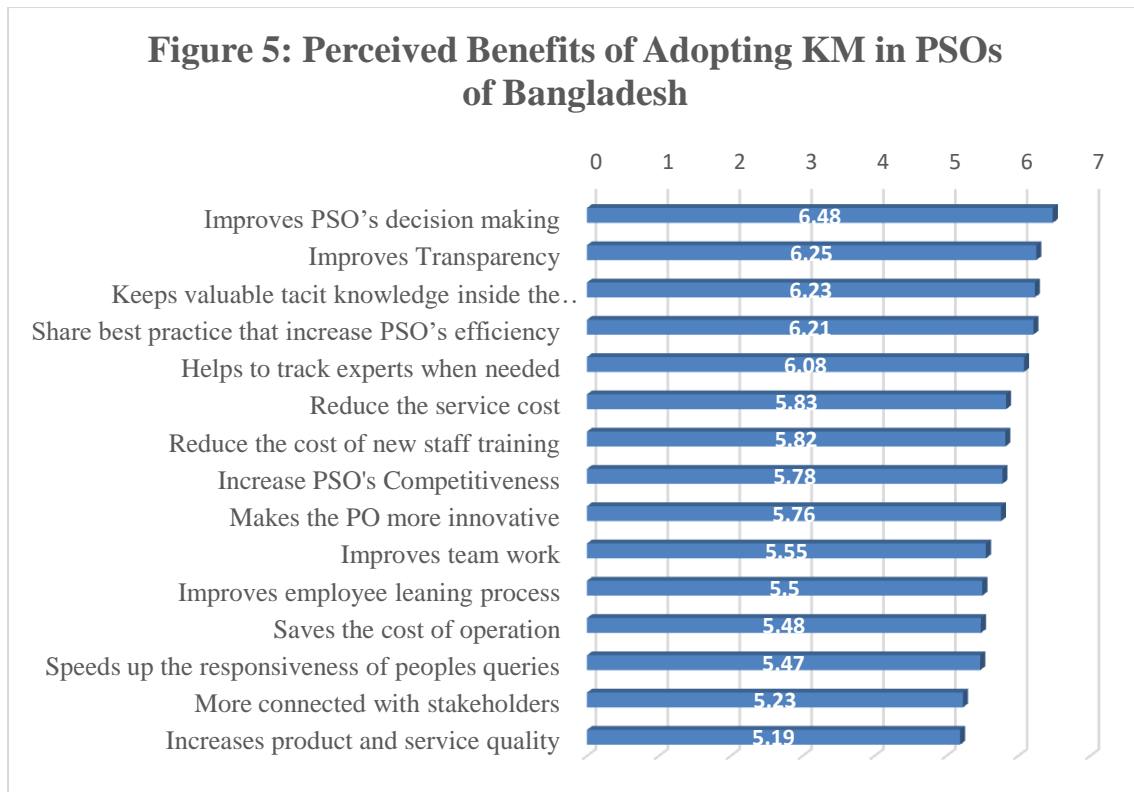


Figure 5: Perceived Benefits of adopting KM in PSOs of Bangladesh

Our findings also indicate that adopting knowledge management do not help public organisations in getting more external funding, as most of our responds somewhat disagreed that the adoption of KM increases the chance of attracting more external funds for different development projects.

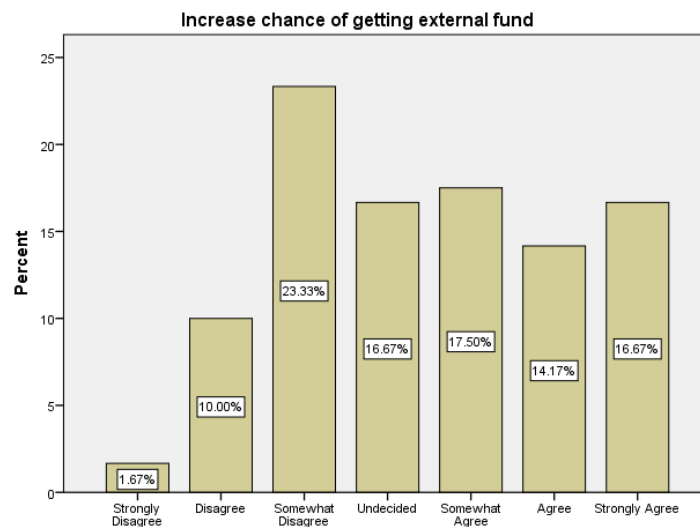


Figure 6: Respondent's view in KM for External Funding

In our survey we found that only one variable namely “KM saves the cost of Operation” has significant difference on level of agreement by the government officials of four departments in One-Way ANOVA test at 5% level of significance, which denotes that our findings can be generalised in large scale.

<i>Descriptive Statistics</i>				
	N	Mean	S.D.	One-Way ANOVA Significance
Improves Transparency	120	6.25	0.91	0.103
More connected with stakeholders	120	5.23	1.454	0.416
Reduce the service cost	120	5.83	1.058	0.509
Increase PSO's Competitiveness	120	5.78	0.835	0.186
Keeps valuable tacit knowledge inside the organisation	120	6.23	1.126	0.082
Reduce the cost of new staff training	120	5.82	0.85	0.184
Improves team work	120	5.55	1.091	0.546
Improves employee leaning process	120	5.5	0.944	0.605
Improves PSO's decision making	120	6.48	0.686	0.329
Increases product and service quality	120	5.19	1.19	0.759
Speeds up the responsiveness of peoples queries	120	5.47	1.181	0.816
Makes the PO more innovative	120	5.76	0.987	0.313
Saves the cost of operation	120	5.48	1.123	0.033*
Share best practice that increase PSO's efficiency	120	6.21	0.66	0.2
Helps to track experts when needed	120	6.08	0.967	0.102

**Variables with significant differences between four groups as tested using one-way ANOVA at 5% level of significance.*

Table 4: Benefits of Adopting KM in PSOs of Bangladesh with their level of Significance among Officials of four public sector departments

Barriers of Implementing KM in PSOs of Bangladesh

The descriptive statistics presented in table 5 suggests that reluctance in sharing knowledge among the workers, lack of trust between each other, difficulties of changing employee's behaviour towards knowledge sharing culture, emphasis on individualism over teamwork in the PSOs, inadequate KM strategies aligned with public organisational strategies, insufficient KM implementation policies, budget constrains of adopting knowledge management technologies in PSOs, lack of top management acknowledgement about KM, lack of rewards and recognitions for sharing knowledge in the PSOs, political interference and pressure on management team of the PSOs, inadequate ICT and KM infrastructures, difficulties of updating ICT and KM technologies, concern over security of information among the administrators, and lack of well-trained ICT staffs are some of the perceived barriers in implementing knowledge management in the public sector organisations of Bangladesh.

<i>Descriptive Statistics</i>			
	N	Mean	Std. Deviation
HR_1: Reluctance in sharing knowledge with others	120	6.50	.635
HR_2: Lack of trust among the employees	120	6.26	.667
HR_3: Difficulty of changing employee's behaviour towards knowledge sharing culture	120	6.07	.786
HR_4: Emphasis on individualism over teamworks in PSOs	120	5.45	.969
Strategic_1: Inadequate KM strategies aligned with public organisational strategies	120	6.26	.815
Strategic_2: Insufficient KM implementation policies	120	6.20	.795

Strategic_3: Budget constraints of adopting knowledge management technologies in PSOs	120	6.25	.736
Managerial_1: Lack of top management acknowledgement about KM	120	6.41	.772
Managerial_2: Lack of rewards and recognitions for knowledge sharing	120	6.43	.682
Managerial_3: Political interference and pressure on management team in the PSOs	120	6.62	.735
IT_1: Inadequate ICT and KM infrastructures in PSOs	120	6.37	.607
IT_2: Difficulties of updating ICT and KM technologies	120	6.13	.709
IT_3: Concern over security of information among the administrators	120	5.60	1.016
IT_4: Lack of well-trained ICT staffs	120	5.82	.953

Table 5: Descriptive statistics on Barriers of Implementing KM in PMOs of Bangladesh

In order to test hypotheses of this study, firstly factor analysis are conducted. Generally factor analysis are conducted for various reasons especially for reducing the number of variables, examining the structure of relation, developing new theories, testing the sampling accuracy etc. (Williams, Onsman, & Brown, 2010).

The Kaiser-Meyer-Olkin (KMO) measurement of 0.633, with a Chi-square (χ^2) = 742.839 and the degree of freedom of 91 in this observation signifies that the sampling accuracy is acceptable to reject the null hypothesis as Williams, Onsman & Brown (2010) suggested that KMO range from 0.5 to 1 is suitable for factor analysis.

<i>KMO and Bartlett's Test</i>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.633
Bartlett's Test of Sphericity	Approx. Chi-Square	742.839
	df	91
	Sig.	.000

Table 6: KMO and Bartlett's Test Result

In factor analysis the principle component analysis with Varimax rotation are used to test how the tested factors are grouped according to our conceptual framework. The result presented in table 7 shows that all the tested factors are grouped into HR, Strategic, Managerial and technology related barriers.

<i>Rotated Component Matrix</i>				
	<i>Component</i>			
	1	2	3	4
<i>HR_1</i>		.818		
<i>HR_2</i>		.826		
<i>HR_3</i>		.809		
<i>HR_4</i>		.604		
<i>Strategic_1</i>	.947			
<i>Strategic_2</i>	.944			
<i>Strategic_3</i>	.768			
<i>Managerial_1</i>			.881	
<i>Managerial_2</i>			.865	

Managerial_3			.901	
IT_1				.700
IT_2				.834
IT_3				.614
IT_4				.626
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 5 iterations.				

Table 7: Rotation Matrix Using Varimax Rotation

In this exploratory factor analysis only factor loading higher than 0.5 are presented. Some factors like Strategic_1 (Inadequate KM strategies aligned with public organisational strategies), Strategic_2 (Inadequate KM implementation policies), Managerial_3 (Political interference and pressure on management team in the PSOs), Managerial_1 (Lack of top management acknowledgement about KM) and Managerial_2 (Lack of reward and recognition for sharing knowledge) are loaded very high, which are 0.947, 0.944, 0.901, 0.881 and 0.865 respectively. The higher loadings signifies that these factors might create strong barriers in implementing KM in the PSOs of Bangladesh.

For making sure of the factor loading properly the confirmatory factor analysis (CFA) are then conducted using the SPSS AMOS 22 software. The path model suggests that some factors like HR_4: Emphasis on individualism over teamwork in PSOs, IT_3: Concern over security of information among the administrators, and IT_4: Lack of well-trained ICT staffs loaded very poorly (loaded below 0.50 level). Therefore we have decided to omit these factors from structural equation modelling in testing hypotheses.

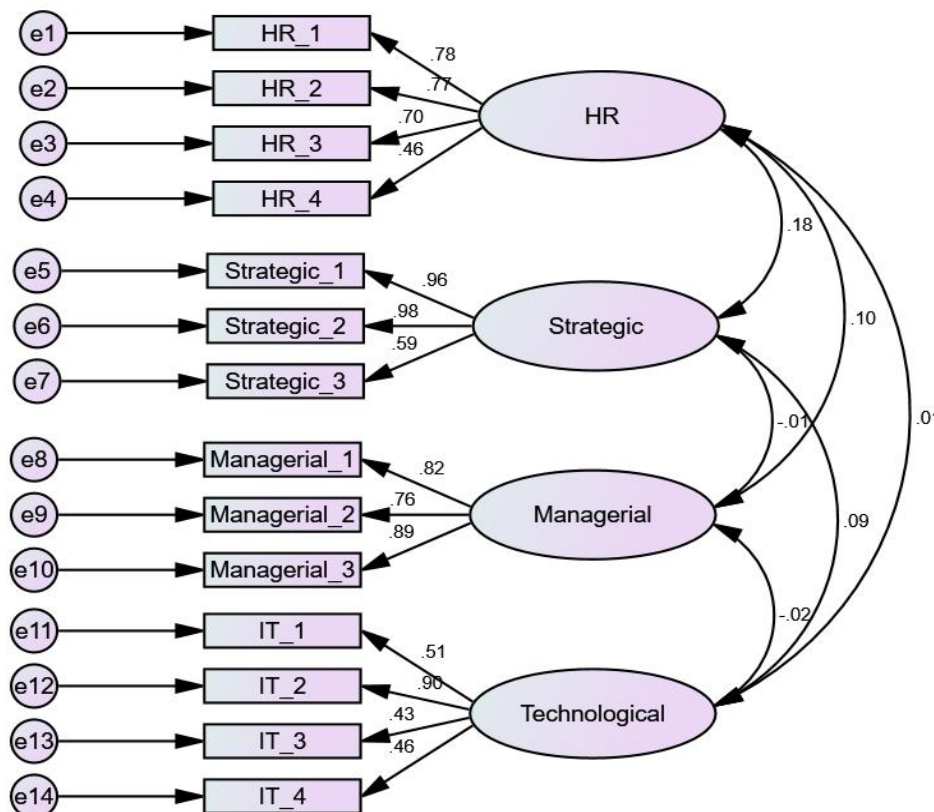


Figure 7: Measurement Model of Confirmatory Factor Analysis

The model fit index of CFA presented in table 8 suggested that overall the model is fit. Several parameter like ratio between chi-square and degree of freedom (CMIN/DF), Goodness of fit (GFI) index, Adjusted goodness-of-fit (AGFI) index, Comparative fit index (CIF), non-normed fit (NFI), Root Mean Square error of Approximation (RMSEA) index are some index used to test the model fit (Rašula, Vukšić, & Štemberger, 2012; Hooper, Coughlan, & Mullen, 2008).

Model Fit Index of CFA			
Fit Index	Ideal Value	Observed Value	Overall Model Fit
CMIN/DF	≤5.00	1.195	Yes
GFI	≥ 0.90	0.914	Yes
AGFI	≥ 0.80	0.873	Yes
NFI	≥ 0.90	0.891	Acceptable
CFI	≥ 0.90	0.980	Yes
RMSEA	≤ 0.05	0.040	Yes

CMIN/DF = Chi Square/Degree of Freedom; GFI = Goodness-of-fit index;
AGFI = Adjusted goodness-of-fit index; NFI = non-normed fit index;
CIF = Comparative fit index; RMSEA = Root Mean Square error of Approximation

Table 8: Model Fit Index of Confirmatory Factor Analysis

At this stage, to test the research hypotheses the structural equation modeling (SEM) techniques are used. As mentioned earlier, three factors HR_4, IT_3, and IT_4 are omitted from this SEM for loading poorly in CFA. Since, this study has more than one dependent variables and several independent variables we have followed the recommendation of Hair, *et al.* (2014), as they suggested that the SEM is the best way to analyse data when multiple dependent and independent variables were presented in a study. The KM vision is measured by two independent variables, current usage of KM in PSOs and the future likelihood of adopting KM in PSOs of Bangladesh. This structural equation modeling is used to test the correlation between KM vision and the four categories of barriers.

The model fit index of this SEM suggests that the model is fit to draw the conclusion. The χ^2/DF , GFI, AGFI, NFI, CFI and RMSEA index of this SEM model are 1.265, 0.915, 0.862, 0.906, 0.978 and 0.047 respectively which indicates that the model is overall fit.

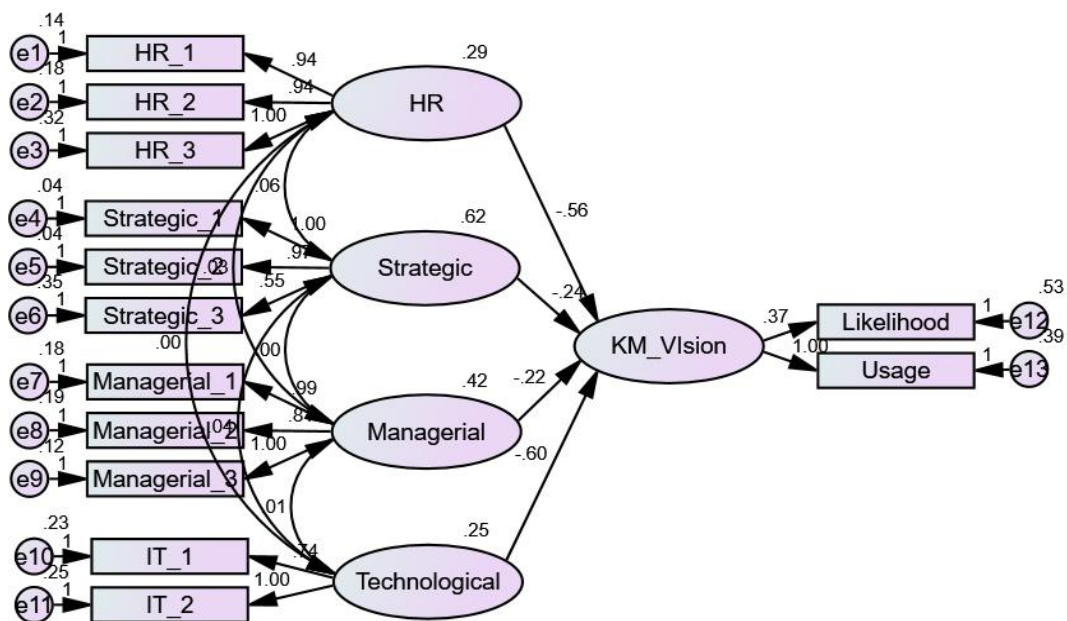


Figure 8: Structural Equation Path Model diagram

The structural equation path model diagram shown in figure 8 illustrates that the HR, strategic, managerial, and technological barriers have negative relation with the KM vision of Bangladesh.

<i>Regression Weights</i>						
			Estimate	S.E.	C.R.	P
KM_Vision	<---	HR	-0.565	0.142	-3.971	***
KM_Vision	<---	Strategic	-0.244	0.08	-3.026	0.002
KM_Vision	<---	Managerial	-0.217	0.102	-2.131	0.033
KM_Vision	<---	Technological	-0.596	0.201	-2.969	0.003
HR_1	<---	HR	0.94	0.14	6.722	***
HR_2	<---	HR	0.941	0.142	6.651	***
HR_3	<---	HR	1			
Strategic_1	<---	Strategic	1			
Strategic_2	<---	Strategic	0.974	0.048	20.248	***
Strategic_3	<---	Strategic	0.551	0.071	7.71	***
Managerial_1	<---	Managerial	0.991	0.101	9.857	***
Managerial_2	<---	Managerial	0.805	0.088	9.162	***
Managerial_3	<---	Managerial	1			
IT_1	<---	Technological	0.741	0.244	3.032	0.002
IT_2	<---	Technological	1			
Likelihood	<---	KM_Vision	0.372	0.147	2.525	0.012
Usage	<---	KM_Vision	1			

Table 9: Regression Weights of SEM

The regression weight presented in table 9 also suggests that the all the four categorised of barriers are negatively correlated with the KM vision. The eleven factors HR_1, HR_2, HR_3, Strategic_1, Strategic_2, Strategic_3, Managerial_1, Managerial_2, Managerial_3, IT_1, and IT_2 factors are loaded in acceptable value. The P value of 0.000, proves that the measured negative relation is significant. Therefore our hypotheses H1, H2, H3, H5, H6, H7, H8, H9, H10, H11 and H12 are established, which means reluctance of sharing knowledge among workers, lack of trust between the employees, difficulty of changing employees behaviours towards knowledge sharing culture, inadequate KM strategies aligned with organisational strategies, insufficient KM implementation policies, budget constrains in adopting KM technologies, lack of top management acknowledgement about KM, lack of rewards and recognitions for sharing knowledge, political interference and pressure on management team, inadequate ICT and KM infrastructure, and difficulties of updating ICT and KM technologies are the main barriers of implementing KM in the public sector organisations of Bangladesh.

DISCUSSION

This research shouts to find out the prospects of implementing knowledge management in the public sector organisations of Bangladesh. Here we have assessed the prospects by analysing the current usages of knowledge management in four departments of public sectors in Bangladesh and found KM is not yet widely practiced in PSOs, but the administrators are very keen of implementing KM in their organisations at near future. They have also provided their views on how proper implication of KM can benefit their organisation and finally we have also identified eleven major barriers of implementing and using KM properly in PSOs of Bangladesh

The fifteen benefits that the public sector administrators recognised as the perceived benefits of adopting KM in PSOs of Bangladesh are similar to the findings from the developed countries prospective. Although the public administrators do not agree that adopting KM can be beneficial in attracting external fund for different development projects of the PSOs, but if the KM can improve the transparency of an organisation and recognise the best practice in accomplishing any task, then KM can indirectly help the public sector organisations in getting external funds in development projects, as more transparency results less corruption. In 2012 the World Bank has cancelled the Bangladesh government loan of \$1.2bn (£764m) for the construction of 6 km long Padma Bridge citing corruption (BBC, 2012). We believe adopting appropriate information and knowledge management techniques, and systems in public sector organisations can reduce the chance of such incidences in future.

Finally we have pointed out eleven potential barriers of implementing KM and gaining the maximum benefits from these technology dependent management tools. Our findings also similar to the findings from developed and other developing nations contexts, though three of our hypotheses like individualism over teamwork, lack of well-trained ICT staffs, and information security concerns are not established in the context of PSOs in Bangladesh due to inadequate evidences. Here we believe further research is required with large sample size to test these areas to draw more generalised conclusion about these three factors, as Salleh, Ahmad and Ikhsan (2008) have pointed out that these three factors can be a barriers of implementing KM at PSOs in the context of the developing nations.

CONCLUSIONS

This is a knowledge era. Due to the increasing number of data generation per day, business of today are adopting many analytical tools to use these data for extracting useful information and knowledge. Although the public sector organisations are lagging behind in using KM from the private organisations, but the popularity is gradually increasing day-by-day. Knowledge management has already proven as successful projects in increasing productivity, innovativeness, connectivity and overall effectiveness of the PSOs in the developed nations. Now it is the high time for the developing countries like Bangladesh to follow the footsteps of the western developed countries by adopting KM in the PSOs and provide the quality service to the citizens of her country. Otherwise the public service organisations will be lagged behind in the race against the private sector organisations and NGOs, which may results dissatisfaction of mass people, increases the price of services like health, education and public transports, and several macro-economic issues like brain-drain and higher outward immigrations might also increase. Therefore, we strongly recommend the government of Bangladesh and public service administrators to adopt and implement different up-to-date knowledge management techniques and technologies in the public sector organisations quickly in making the PSOs more effective, innovative, people centric, connected and overall efficient in providing public services to the people of Bangladesh.

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