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# Multi Methods for Knowledge Management Strategy Roadmap of Government Human Capital Management

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## Abstract

Knowledge management strategy roadmap consists of several stages to implement knowledge management in three government organization who manage the government human capital management process. They are State Ministry for State Apparatus Reform (KEMENPAN & RB), National Civil Service Agencies (BKN) and National Institute of Public Administration (LAN). Generally this KM strategy roadmap covers three important aspects in the government human capital management there are people, process and technology. This research describes the development of the KM strategy using multi methods there are OCAI (Organizational Culture Assessment Instrument), gap analysis assessment and risk analysis assessment. Questionnaire and interviews are conducted to discover the data related to the KM strategy roadmap of government human capital management. Result of the KM strategy roadmap was validated using expert judgment. Research finding that the KM strategy roadmap for government human capital management was describes in three criteria and three phase. There are people (three phase), process (three phase), technology (two phase) and each of phase has their own strategic action plan.

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## 1. Introduction

Government human capital (GHC) became one of eight objectives area in grand design of bureaucratic reform. Hence, the knowledge management is a part of bureaucratic reform roadmap that should be implemented by all government ministries in Indonesia. Knowledge management (KM) believed can increase the organizational

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learning culture and experience transfer among the organizational member and stakeholder. The outcome is the professionalism of government human capital and effective public service by using KM. The government regulation related to the bureaucratic reform, knowledge management and government human capital management (GHCM) were declared on Presidential Decree No. 81 Year 2010, PERMENPAN legislation, UU No. 5 Year 2014 and other government policy. Therefore all government ministries should implement the KM to improve their professionalism for the public services.

The government human capital management process are conducted in three government ministries there are State Ministry for State Apparatus Reform (KEMENPAN&RB), National Institute of Public Administration Republic of Indonesia (LAN), National Civil Service Agency (BKN). These three ministries have to collaborate and cooperate in the process of GHCM. Therefore, KM process should be implemented to exchange their knowledge to do their duties efficiently.

According to several studies KM can enhance knowledge by discovering, capturing, sharing and applying it in their organization. KM also can increase the organizational value from their human capital<sup>1,2</sup>. However, it's a big challenge to implement KM in government institution because of their culture, regulation, policy, organizational structure and also their human capital itself. Hence, we need to define the best strategy and action plan to implement the KM in GHCM. This research aims to develop the KM strategy roadmap of government human capital management in Indonesia. This objective is to improve the organizational performance in conducting the government human capital management process.

## **2. Knowledge Management Strategy**

### *2.1. Knowledge Management*

Knowledge management (KM) is important to achieve the organizational objectives, its purpose to manage individual knowledge in organization which consist of some activities such as discovering, capturing, sharing and applying their knowledge<sup>1</sup>. Whereas,<sup>2</sup> claimed that KM can increase the intellectual capital of organization to improve the organizational competitive value and objectives. This process can be done by identify, select, manage, transfer and disseminate the information for problem solving, decision making and strategic planning in the future. KM in organization aims to create the organizational knowledge by using several activities such as acquire, represent, exchange, maintain and integrated the tacit and explicit knowledge<sup>3</sup>. KM also embedded in the human resource management and organizational process by create, store, distribute and interpret the knowledge<sup>4</sup>.

### *2.2. Knowledge Management Strategy*

Strategies consist of several steps to achieve the long term of organizational objectives in the future. Hence, the organizational strategy aims to develop the organizational initiatives through the action plan. According to<sup>5</sup>, the knowledge management strategy is a set of organizational process and infrastructure which used to manage the organizational knowledge. Furthermore this strategy can improve the organizational performance, initiatives, financial revenue, process business improvement and the capabilities of each human resource<sup>6</sup>.

## **3. Government Human Capital Management**

### *3.1. Government Human Capital*

Human capital (HC) in organization is famous as the precious asset for organization. Organizational intellectual capital reflected in the individual knowledge, skill, experiences, abilities and self motivation<sup>7</sup>. Hence, organizational value also can be measured by their human capital<sup>8</sup>. It also consider that human capital represent every organizational member ideas, knowledge, innovation and how they make the decision making in working activities<sup>9</sup>. Furthermore, HC can be consist of technical knowledge, experiences, and knowledge management which embedded in their organizational culture<sup>10</sup> and it can improve the organizational initiatives<sup>11</sup>. Generally,

government human capital is association of individual knowledge, skill, abilities, ideas, experiences as organizational intangible value and they were manage through the human capital management process to enhanced the organizational initiatives.

### 3.2. Government Human Capital Management

Human capital management (HCM) is set of activities to manage organizational human capital. These process conducted to improve the organizational competitive value through employees abilities into higher level of individual performance <sup>12</sup>. Human capital management process include planning, recruitment and selection, placement, development and training, retention <sup>11,13 14</sup>, employee satisfaction, engagement, reward <sup>11</sup> and collaboration activities to manage individual and organizational competency<sup>14</sup>. Hence, <sup>15</sup> assume that HCM activities consist of employee development, motivate and management which embedded in the organizational activities. Furthermore, HCM represent organizational talent management, learning and development which requires organizational and individual abilities, commitment, changes, leadership, engagement and performances <sup>16</sup>.

### 4. Organizational Culture Assessment Instrument (OCAI)

Organizational Culture Assessment Instrument (OCAI) also well known as Competing Value Framework which used to interpreting organizational design, life cycle development, quality, effectiveness, leadership, and human resource management abilities<sup>17</sup>. OCAI is an instrument that used to measure the organizational culture in six dimension criteria, there are dominant characteristics, organizational leadership, management and employees, organizational glue, strategic emphases and criteria of success<sup>18</sup>. The CVF can determine the organizational culture into four types as shown in the figure 1 bellow <sup>19</sup>:

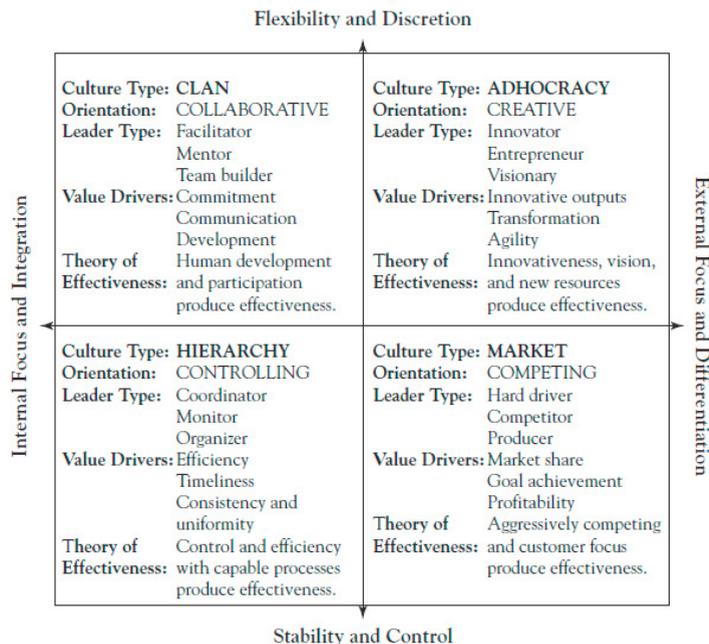


Fig. 1. CVF of Leadership, Effectiveness and Organizational Theory <sup>19</sup>

Figure 1 represent four types of organizational culture based on CVF, the domains are used to determine each strategic plan to encourage the future organizational culture. Future culture in organization can be changed align with the strategic plan and their management process.

## 5. Gap Analysis

Gap analysis is one of strategic method to determine the existing condition of organization and the future condition that required to fulfill the organizational objectives. Stages in gap analysis method are identify the gap analysis objectives, analyze the current challenges that prevent the objectives, construct the strategic plan to resolve the gap and reach the objectives, review the gap analysis plan and the last is audit the process<sup>20</sup>. According to <sup>21</sup>, gap analysis can bridging the gap that used to create the organizational initiative in the future. This methods also can align the knowledge management implementation with organizational and government human capital management strategy<sup>22,23</sup>.

## 6. Risk Analysis

Risk analysis methods believe can define the important activities that should be done<sup>24</sup>. This method can integrate the sensitivity, reduction of risk and determine the attack in organization<sup>25</sup>. According <sup>26</sup> to all of organizational risk factors can be eliminate based on the analysis result of risk analysis. Some previous studies define that risk analysis have some advantages such as cost effective and can be done in iterative process <sup>25</sup>, can cover the indication of risk and can categorize the risk <sup>22,24,27</sup>, specify the risk solution <sup>27</sup> and able to cover the KM implementation <sup>24,25</sup>.

## 7. Expert Judgment

Expert judgment methods usually used to solve the problem based on the expert consensus <sup>28</sup>. Several studies in technical, scientific and social mostly used this methods to cover the problem and predict the solution <sup>29</sup>. This method also can define the probability of future activities and some policy to be implemented <sup>30</sup>. While, assume that this method can determine the strategic plan for decision making, explain the phenomenon and organizational problem solving<sup>31</sup>.

## 8. Previous Study

Previous study using OCAI to identify the organizational culture in current position and the future condition related to the organizational objectives. OCAI can measure the type of organizational culture and the process to for changing the organizational culture based on the analysis result in the future. One of the process to change the culture is determine the strategic initiative in organization. This initiative includes activities and actions to make the major changes of culture that can give the big implies to the organizational objectives. OCAI instrument has been used in almost 10.000 organizational sector (private sector, public sector, education, healthcare, NGOs)<sup>18</sup>. According to <sup>32</sup> OCAI is very appropriate tools to determine the organizational culture in the sport organization in Korea which has proven by the highest reliability and the validity value.

Related research was aligned with risk analysis to determine the strategic plan was done in Canadian, this research conducted to define strategies to cover the climate changes. The strategic plan of climate risk was identified based on the international risk management standard (ISO 31000) and Canadian national standard of risk management. This plan is used to ensure that organization able to cover the damage, predict the cost of climate change in every aspect of life, and determine the recovery activities after the damage <sup>33</sup>. Other research using risk analysis was implemented in Kenya. The conceptual strategic framework in government service performance was developed by identify each risk in each organizational strategic plan (organizational structure, top management commitment, involvement of valuable framework and availability of fund) <sup>34</sup>.

Otherwise, the gap analysis are used in formulated the strategic priority in information system attitude program. Based on the analysis process the gap analysis can define the action plan, conceptual comprehension in oral and written communication skill in information system attitude<sup>21</sup>. This method also used in construction industry to define the security problem strategic. The analysis was done using the five safety construction problems that

consider in their organization. The indent problems are management support, monitoring resource allocation, teamwork and law enforcement <sup>35</sup>.

## 9. Methodology

The research methodology consist of several stages there are literature study, data collection, determining the strategy matrix using OCAI and Gap Analysis, then developing the KM strategy roadmap using risk analysis, the last is validation using the expert judgment.

Literature study conducted to discover the conceptual theory related to the KM strategic roadmap of government human capital management using some analysis method. Data collection was done by interview and survey in three government ministries (KEMENAN & RB, LAN and BKN). Number of respondent survey using OCAI are 204 respondents which distribution are 132 respondents in BKN, 44 respondents in MENPAN and 28 respondent in LAN). While, the expert interview for identify gap analysis based on problem identification are six experts. The risk analysis process is based on the five expert interviews. Otherwise the validation conducted with focus group discussion with six experts.

The analysis of KM strategy roadmap of GHCM methods represents in Fig. 2



Fig. 2. KM Strategy Roadmap of GHCM Analysis Method

Figure 2 describes the KM strategy roadmap development analysis using multi methods there are Organizational Culture Assessment, Gap Analysis Assessment and Risk Analysis Assessment. The strategy matrix is determined by merge the matrix of strategy based on OCAI result and gap analysis result from the problem identification. This process analyzes the current problem that occurs in the organization and the strategic activities to achieve the future expected condition. Each strategic activities represents in the strategic matrix.

Then, risk analysis was done to develop the KM strategy roadmap to perform the priority activities and strategic activities into several phases that should be done in the organization. In this stage, the risk factor from each strategic activity was identified. Last stage is validation the result of strategic roadmap to measure the research result.

## 10. Analysis and Result

Result from the problem identification there are fifteen problems that should be solved in the organization. There are human resources, regulation/policy, leadership, organizational culture, human resource management, monitoring and evaluation, human resource development, knowledge, budget, goodwill, IT, commitment, socialization, knowledge sharing, infrastructure. Then, gap analysis was conducted to determine the strategy to bridge the gap in existing problem into the future objectives. Those strategies such as employee replacement and redistribution, construct a regulation/policy, change leadership, create sharing knowledge culture, align employee development with requirement knowledge, increase employee commitment and integrity, design and implementation of KMS, increase infrastructure.

Hence, OCAI result in three government ministries that manage the government human capital are current type of the organizational culture is hierarchy (40.93%) and the future culture expected is clan culture (44.44%). The existing culture is hierarchy which mostly enforce employees to share and transfer their individual knowledge. Hence, the clan culture encourages people to do sharing directly to others. Those organization existing culture are hierarchy and the future culture prefer clan. Clan culture recognizes can improve the knowledge management practice in organization, it also considered to encourage the strategic implementation. Clan culture also promoted collaboration among organizational member. Based on the OCAI result the recommendation for transform the organizational culture from hierarchy into clan are focus in the individual relationship, observe employee loyalty, enhance collaboration, commitment and group cohesion, leader become mentor and adviser, promote sharing culture, teamwork, employee participation and friendship.

All result from gap analysis and OCAI were merged into matrix strategy. The matrix strategy divided into three criteria there are people, process and technology. The “people” criteria consists of six activities there are employee replacement and redistribution, knowledge enhancement, knowledge sharing and transfer improvement among leader and employee, HR teamwork improvement, increase the commitment, integrity and loyalty in services, leader enforcement as mentor and centre of knowledge. The “process” consists of seven activities, there are HR process alignment with knowledge requirement, training need analysis development, HR development improvement, knowledge sharing and transfer culture enforcement, knowledge dissemination through technology, KM process engagement and supervision by leader, regulation and guidelines implementation. The “technology” consists of two activities there are KMS planning and implementation and KM process infrastructure development.

Risk analysis represents the KM strategy roadmap that divided into three criteria and three phases. In this step, every risk of strategy roadmap criteria was determined such as risk of “people” are organization structure not flexible and overlap, individual resistances to change, close and rigid organizational culture, lack of individual motivation, inability of leadership, leadership resistances. The risk of “process” are employee development not align with organizational needs, immature GHCM strategy, under competence GHC, sectoral ego, leadership, overlapping information, lack of goodwill, diversity of comprehension, and the risk of “technology” are budget of available, and lack of technology guidelines, etc. Each activity in the roadmap was divided based on the priority of the urgent activities and the impact of the risk factor. The roadmap strategy is shown in the Fig. 3.

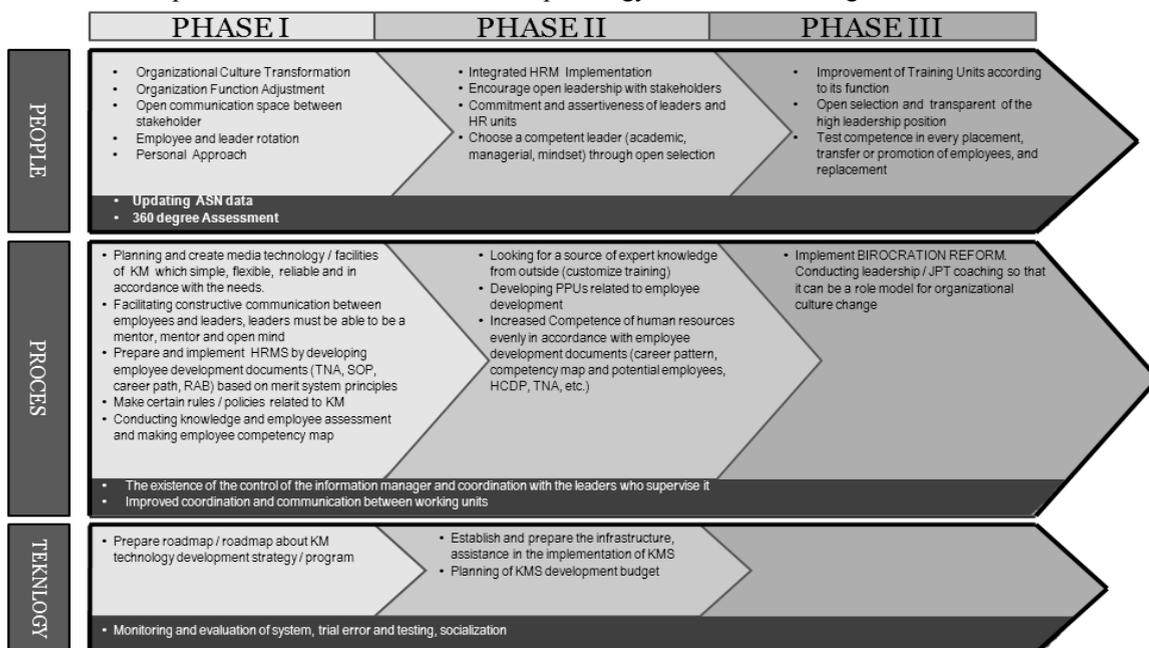


Fig. 3. KM Strategy Roadmap of GHCM

Three phases describes the stage in each criteria that should be done by the organization to implement the KM in government human capital management. The last line in every criteria mean that the activity is carried out during all the phase. Every ministry can identify each activity that already done in their place and then do the next activities base on the timeline in the roadmap until it's fully implemented.

The KM strategy roadmap result already validate by the expert judgment in the focus group discussion. The expert judgment result for the KM strategy roadmap of government human capital management are consistent and reliable. It can be proof by the PRL reliability test value is 0,71 which is mean that has intermediate reliability.

## 11. Conclusion

Research finding that KM strategy roadmap of government human capital management consists of three criteria there are people, process and technology. The roadmap timeline divides into three phases which have several activities on it. The KM strategy roadmap can be used for the guidelines to the ministries that assign to manage the government human capital there are KEMENPAN & RB, LAN and BKN. All of activities in the KM strategy roadmap should be done in order to implement KM by configure it into their organizational strategic plan. Those ministries can start to implement KM by identify the activities in each criteria from phase one until phase three and done the activities that should be obtain during all phase. Each ministries can continue the next phase after they fulfill all of the activities in the previous phase. Some instrument questions are used to measure the existing activities that already done in the organization related to the KM strategy roadmap. This instrument be a measurement tools to observe how far the readiness for KM implementation of government human capital management. The gap between existing condition of KM implementation and the roadmap can be a recommendation for the government to construct a problem solution of each gap. They also can make a regulation or policy related to the knowledge management and the process of government human capital management which align with the **bureaucratic reform program**.

The multi methods that used to develop the KM strategy roadmap can give reliable result by merging the analysis result from three methods. This multi methods also have advantages by identify the internal and external condition of the organization based on their culture, problem and risk.

Limitation of this study is specific scope of study on government human capital management in the public sector. Future research can be expanded for the Indonesian government institution or NGOs and construct with another research methods.

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## References

1. Bercerra-Fernandez I, Sabherwal R. Knowledge Management System and Process. Prentice Hall, editor. Upper Saddle River, New Jersey: M.E. Sharp, Inc.; 2004.
2. Turban E, Aronson JE, Liang T-P. Decision Support System. 7th Editio. Pearson/Prentice Hall; 2005.
3. Kawtrakul A. Beyond Knowledge Management : Knowl Creat Diffus Util. 2012;9–15.
4. Palacios-Marques D, Gil-Pechuán I, Lim S. Improving Human Capital Through Knowledge Management Practices in Knowledge-Intensive Business Services. *Serv Bus* [Internet]. 2011;5:99–112. Available from: <http://link.springer.com/10.1007/s11628-011-0104-z>
5. Zack MH. Developing a Knowledge Strategy: Epilogue [Internet]. Choo NB and W, editor. Vol. 41, The Strategic of Intellectual Capital and Organizational Knowledge: A Collection of Readings. Oxford University Press.; 2002. 125 p. Available from: <http://web.cba.neu.edu/~mzack/articles/kstrat/kstrat.htm>
6. Nicolas CL, Cerdan ALM. Strategic Knowledge Management, Innovation and Performance. *Int J Inf Manage*. 2011;31:502–9.

7. Baron A, Armstrong M. Human Capital Management Achieving Added Value Through People [Internet]. Kogan Page. London and Philadelphia: Kogan Page Limited; 2007. Available from: [http://samples.sainsburysebooks.co.uk/9780749451370\\_sample\\_128847.pdf](http://samples.sainsburysebooks.co.uk/9780749451370_sample_128847.pdf)
8. Kucharčíková A. Human Capital – Definition and Approaches. *Hum Resour Manag Ergon*. 2011;V:60–70.
9. Kaplan RS, Norton DP. Measuring the Strategic Readiness of Intangible Asset. In: *Measuring the Strategic Readiness of Intangible Asset*. Harvard Business School Publishing; 2004. p. 52–63.
10. Anne-lise D, Nathalie D. Human Capital and Strategic Human Resource Management in Knowledge -Intensive Firms: An Exploratory Case Study. In: 11th Conference of the European Academy of Management. Tallinn, Estonia; 2011. p. 1–35.
11. Boroujerdi RY, Siadat SA, Hoveida R, Khani S. The Study of The Nature of Human Capital Management Advantage for The Organization. *Int J Sci Res Publ*. 2014;4:1–4.
12. Chatzkel JL. Human Capital: The Rules of Engagement are Changing. *Lifelong Learn Eur*. 2004;9:139–45.
13. Vequist IV DG, Teachout MS. A Conceptual System Approach for the Relationship between Collaborative Knowledge Management (CKM) and Human Capital Management (HCM). *IEEE*. 2006;150–6.
14. Lee C. The Impact of Human Resource Configurations on Intellectual Capital in the Australian Biotechnology Industry. *J Int Manag Stud*. 2012;7:201–7.
15. Tan CL, Nasurdin AM. Human Resource Management Practices and Organizational Innovation : Assessing the Mediating Role of Knowledge Management Effectiveness. *Electron J Knowl Manag*. 2006;9:155–67.
16. Siddiqui F. Human Capital Management: An Emerging Human Resource Management Practice. *Int J Learn Dev*. 2012;2:353–67.
17. Cameron KS, Quinn RE. *Diagnosing and Changing Organizational Culture*. Upper Saddle River, New Jersey: Prentice Hall; 1999. 1-12 p.
18. Cameron K. A Process for Changing Organizational Culture. 2004th ed. Driver M, editor. *The Handbook of Organizational Development*; 2004. 1-18 p.
19. Cameron KS, Quinn RE. *Diagnosing and Changing Organizational Culture*. Revised Ed. United States of America: John Wiley & Sons; 2006. 259 p.
20. Murray J. A Gap analysis Process to Improve IT Management. *Mosaic A J Interdiscip Study Lit*. 2009;
21. Van Auken S, Chrysler E, Wells LG, Simkin M. Relating Gap Analysis Results to Information Systems Program Attitudes: The Identification of Gap Priorities and Implications. *J Educ Bus*. 2011;86:346–51.
22. Rice JF. *Adaption of Porter’s Five Forces Model to Risk Management*. Alabama; 2010.
23. Tsai JY, Raghu TS, Shao BBM. Information Systems and Technology Sourcing Strategies of e-Retailers for Value Chain Enablement. *J Oper Manag [Internet]*. 2013;31:345–62. Available from: <http://dx.doi.org/10.1016/j.jom.2013.07.009>
24. Baskerville RL, Stage J. Controlling Prototype Development Through Analysis \*. *MIS Quarte*. 2009;20:481–504.
25. Birch DGW, McEvoy N. Risk Analysis for Information Systems. *J Inf Technol*. 1992;7:44–53.
26. Willcocks L, Margetts H. *Risk Assessment and Information System*. In: *Proceeding of the First European Conference on Information System, ECIS*. United Kingdom: Research Gate; 1993.
27. Sumner M. Risk Factors in Enterprise-Wide / ERP Pojects. *J Inf Technol*. 2000;15:317–27.
28. Klügel J-U. Uncertainty Analysis and Expert Judgment in Seismic Hazard Analysis. *Pure Appl Geophys [Internet]*. 2010;168:27–53. Available from: <http://link.springer.com/10.1007/s00024-010-0155-4>
29. López SP, Manuel J, Peón M, José C, Ordás V. Information Technology as an Enabler of Knowledge Management : An Empirical Analysis.
30. Hammitt JK, Zhang Y. Combining Experts’ Judgments: Comparison of Algorithmic Methods Using Synthetic Data. *Risk Anal*. 2013;33:109–20.
31. Kruger CJN, Johnson RD. Information management as an enabler of knowledge management maturity: A South African perspective. *Int J Inf Manage [Internet]*. 2009; Available from: <http://dx.doi.org/10.1016/j.ijinfomgt.2009.06.007>
32. Choi YS, Scott D, Martin J, Seo M. Validation of the Organizational Culture Assessment Instrument : An Application of the Korean Version. *J Sport Manag*. 2010;24:169–89.
33. Egner IDM, Bruce JP, Black R. *Canadian Climate Change Risk Assesment Guide. A Strategic Overview of Climate Risks and Their Impact on Organizations*. Canada; 2014.
34. Kibachia J, Iravo M, Luvanda A. A Survey of Risk Factors in the Strategic Planning Process of. *Eur J Bus Innov Res*. 2014;2:51–67.
35. Aksorn T, Hadikusumo B. Gap Analysis Approach for Construction Safety Program Improvement. *J Constr Dev Ctries [Internet]*. 2007;12:77–97. Available from: [http://www.hbp.usm.my/jcdc/images/JCDC\\_12\(1\)/021-07\\_Thanet & Hadikusumo\\_.pdf](http://www.hbp.usm.my/jcdc/images/JCDC_12(1)/021-07_Thanet & Hadikusumo_.pdf)