

Investigating knowledge management critical success factors in carpet industry

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ABSTRACT

This paper presents an empirical study to learn more about challenges in carpet industry using factor analysis. The proposed study of this paper designs a questionnaire consists of 51 questions in Likert scale and distribute it among experts in Carpet industry. We have analyzed the data using factor analysis and deleted 10 most redundant questions. Cronbach alpha was calculated as 0.88 for the remaining questions, which is well above the minimum desirable limit. We have also managed to remove six more questions using principal axis factoring leaving 8 basic components including 35 different questions. The proposed study of this paper has categorized eight factors including specialized relationships, knowledge coordinator, knowledge tool, knowledge organization, knowledge processes, knowledge chain, knowledge hardware and Knowledge feasibility study. Investigating details of the results of each eight items could help us build better strategies to help this industry grow faster and more reliable in today's business world.

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1. Introduction

Iranian carpet industry has been one of the most popular handcraft industries in the world and it has created substantial numbers of jobs in different villages and small towns in this country. There are literally many designs and plans introduced by Iranian carpet makers but during the past two decades, we have been witness on an increasing competition mostly from other countries such as China, India, Pakistan, etc. On the other hands, there are ongoing interests for membership of world trade organization (WTO). It is important to take the necessary actions to remove any barrier for joining this kind of agreement and knowledge management and intellectual capital play important roles on business units.

Bontis (2001) performed a comprehensive review on the literature pertaining to the evaluation of knowledge assets. He explained that knowledge assets are primary source of sustainable competitive advantage. He also explained the burgeoning field of intellectual capital (IC) as an exciting area for

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both researchers and practitioners and argued that the measurement of such intangible assets is a challenging task. He discussed various models to measure IC highlighted their strengths, weaknesses.

Anumba (2009) investigated the necessary for next-generation knowledge management (KM) systems in the construction sector. The survey outlined the primary features that such systems definitely need. According to Anumba (2009), KM has recently become to deliver value to many construction sector organizations but there is still a need for next-generation systems, which could provide much more added value.

Dalkir et al. (2007) presented an assessment model for evaluating the success of KM initiatives in a government setting. They reported that the proposed results-based management assessment framework proved to be suitable for KM assessment in a government setting.

Gao et al. (2008) purpose of this research is to help knowledge managers systematically grasp knowledge about management knowledge and presented a deep and full understanding of the nature, scope and methodologies of knowledge management. They reported that KM in business organizations is responsible for managing the activities of knowledge workers or the transformation and interaction of organizational static substance knowledge and dynamic process knowledge for products, services, and practical process innovation and, at the same time, creating new or justifying other organizational systematic knowledge. According to their survey, KM is not just about recording and manipulating explicit knowledge, but requires explaining other issues such as process rather than content.

Gold et al. (2001) investigated the issue of effective KM in terms of organizational capabilities. They reported that a knowledge infrastructure consisting of structure, technology and culture along with a knowledge process architecture of acquisition, application, conversion and protection are essential organizational capabilities or “preconditions” for effective KM. They also provided a basis for understanding the competitive predisposition of a firm as it enters a program of KM through an empirical investigation. Gilak et al. (2012) introduced a new concept about the nonlinear impact of effective tax rate on tax evasion.

Hanisch et al. (2009) demonstrated how KM in temporary organizations has recently become increasingly important factor in many industries and examined KM in different projects. They reported that the success of KM implementation is mainly determined by cultural factors whereas technical aspects like information systems and project management methods are considered as supporting factors. Kim (2001) studied the impact of cognitive styles on users' information looking for task performance using a knowledge domain information visualization system. Kim reported that users' cognitive styles could influence their search performance. The results confirmed that cognitive style was an important factor in the study of information science and human-computer interaction.

According to Uziene (2010), Intellectual capital (IC) theory has been active for two decades but there are still many unanswered questions in theory and business practices. IC based issues in terms of essence, structure, measurement and its impact on business performance are still subject of many investigations. Managers constantly search for the new solutions of recognizing, measuring and managing IC in order to maximize the value of knowledge, develop new forms of competitiveness and increase organization's potential. Rangriz et al. (2012) implemented various mathematical techniques to consider different actions for changing threats to opportunities, reducing unnecessary

costs, increasing revenue and market share, etc. They implemented Fuzzy analytical hierarchy process (AHP), Benefits-Opportunities-Costs-Risks (BOCR) technique to detect possible benefit, risk and cost components.

2. The proposed study

The proposed study of this paper designs a questionnaire consists of 51 questions in Likert scale and distribute it among experts in Carpet industry. We have analyzed the data using factor analysis and deleted 10 most redundant questions. Cronbach alpha was calculated as 0.88 for the remaining questions, which is well above the minimum desirable limit. We have also managed to remove six more questions using principal axis factoring leaving 8 basic components including 35 different questions.

3. Details of factor analysis

3.1. Specialists

This item includes 12 main variables including users' commitment, facilitating relationships, organizational structure, using new ideas, effective organization, specialty, leadership, strategy, resource allocation, information exchange, training and education and supply chain management and details of results are given in Table 1 where Cronbach alpha has been calculated as 0.937.

Table 1

Details of factor analysis specialized relationships

Option	Factor weight	Eigen value	of variance %	Accumulated
Users' commitment	0.874			
Facilitating relationships	0.869			
Organizational structure	0.840			
using new ideas	0.795			
Effective organization	0.758			
Specialty	0.756	7.434	21.240	21.240
Leadership	0.749			
Strategy	0.720			
Resource allocation	0.697			
Information exchange	0.691			
Training and education	0.644			
Supply chain management	0.509			

3.2. Knowledge Coordinator

Knowledge Coordinator includes four variables including coordinator, competitive advantage, knowledge identification and knowledge organization. Table 2 summarizes details of our results for this item and Cronbach alpha has been calculated as 0.852.

Table 2

Factor analysis for Knowledge coordinator

Option	Factor weight	Eigen value	of variance %	Accumulated
Coordinator	0.942			
Competitive advantage	0.847	4.087	11.676	32.916
Knowledge identification	0.818			
Knowledge organization	0.720			

3.3. Knowledge tool

This component includes five variables including intellectual properties, knowledge evaluation, knowledge sharing, information gathering and organizational culture. Cronbach alpha has been calculated as 0.866 and details of factor analysis have been given in Table 3.

Table 3

Factor analysis for Knowledge tool

Option	Factor weight	Eigen value	of variance %	Accumulated
Intellectual properties	0.895			
Knowledge evaluation	0.818			
Knowledge sharing	0.803	3.854	11.011	43.927
Information gathering	0.721			
Organizational culture	0.634			

3.4. Knowledge organization

This item includes four variables including organizational intelligence, employee skills, organizational experience and learning. Cronbach alpha has been calculated as 0.761 and Table 4 shows details of our findings,

Table 4

Factor analysis for knowledge organization

Option	Factor weight	Eigen value	of variance %	Accumulated
Organizational intelligence	0.802			
Employee skills	0.715	2.624	7.496	51.423
Organizational experience	0.710			
Organizational learning	0.636			

3.5 Knowledge processes

This factor includes three variables including knowledge transfer, resource management and knowledge storage and they are analyzed using factor analysis, where Cronbach alpha has been calculated as 0.616 and details are given in Table 5 as follows.

Table 5

The summary of factor analysis for knowledge processes

Option	Factor weight	Eigen value	of % variance	Accumulated
Knowledge transfer	0.796			
Resource management	0.604	2.150	6.142	57.564
Knowledge storage	0.596			

3.6. Knowledge chain

This item includes three variables including knowledge database, knowledge based economy and knowledge unification and Cronbach alpha has been calculated as 0.573 and details are given in Table 6.

Table 6

The summary of factor analysis for knowledge chain

Option	Factor weight	Eige value	%of variance	Accumulated
Knowledge database	0.809			
Knowledge based economy	-0.687	2.074	5.926	63.490
Knowledge unification	0.653			

3.7. Knowledge hardware

This item includes two variables knowledge asset and knowledge distribution and Cronbach alpha is calculated as 0.771 and details are given in Table 7 as follows.

Table 7

The summary of factor analysis for knowledge hardware

Option	Factor weight	Eigen value	of variance %	Accumulated
knowledge asset	0.725			
knowledge distribution	0.578	1.720	4.913	68.403

3.8. Knowledge feasibility study

Knowledge feasibility study includes two factors of obtaining knowledge and software applications. Cronbach alpha has been calculated as 0.569 and Table 8 summarizes the results.

Table 8

The summary of factor analysis for knowledge hardware

Option	Factor weight	Eigen value	of variance %	Accumulated
obtaining knowledge	0.903			
software applications	-0.667	1.524	4.354	72.758

In summary, we can conclude that there eight important factors influencing knowledge management in carpet industry and each factor includes between two to twelve different factors where the relative importance of each item has been demonstrated in details.

4. Conclusion

In this paper, we have presented an empirical study to learn more about challenges in carpet industry using factor analysis. The proposed study of this paper has categorized eight factors including specialized relationships, knowledge coordinator, knowledge tool, knowledge organization, knowledge processes, knowledge chain, knowledge hardware and Knowledge feasibility study. Investigating details of the results of each eight items could help us build better strategies to help this industry grow faster and more reliable in today's business world.

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