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Assessing the Key Success Factors of Knowledge Management Adoption in Supply Chain

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Abstract
Today Supply chains of organizations need to developing knowledge in order to achieve competitive advantages. Hence, knowledge management (KM) plays an important role in supply chain to create, build, maintain and utilize knowledge in this way. KM adoption in the supply chain needs high investment as well as few changes in the culture in whole of organization. The aim of this paper is to identify and prioritize the key success factors (KSFs) of KM adoption in the supply chain. In this study after reviewing the literature, the most important success factors of KM adoption were identified and classified in 16 KSF. Then this factors analyzed by best-worst method technique. Also, an empirical study presented to illustrate the proposed method and demonstrate its effectiveness. Therefore, for complete the questionnaire, was used the opinions of 10 experts. A total of 16 KSFs were identified through extended literature review and expert's opinion. The results of the study showed that Supports of Top management, Integration of knowledge and information flow and Organization structure are the three most important KSFs of KM adoption in the SC. The case of this study should pay attention and concentrate to these KSFs with higher priority for effective KM adoption in supply chain and implement them progressively to greatly improve the efficiency of the whole supply chain performance.
Keywords: Knowledge Management Adoption, Supply Chain, Key Success Factor, Best-Worst Method.

1. Introduction

A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and suppliers, but also

transporters, warehouses, retailers, and even customers themselves. Within each organization, such as a manufacturer, the supply chain includes all functions involved in receiving and filling a customer request. These functions include: new product development, marketing, operations, distribution, finance, and customer service (Chopra & Meindl, 2007; Elgazzar, Tipi, Hubbard, & Leach, 2012). In today's business environment, organizations are eager for improving their competitiveness in order to exist in the highly dynamic marketplace (Patil & Kant, 2014b). Knowledge is one of the main capable factors that offering competitive advantages to supply chain (SC) (Cheng, Yeh, & Tu, 2008; Tseng, 2009). Knowledge adds value to an organization through its contribution to products, processes, and people, while knowledge management (KM) transforms information, data, and intellectual assets into enduring value by identifying useful knowledge for management actions (Sung, 2006). KM is a major enabler of SC, and is a key element in the information-intensive and multi-cultured enterprise environments (Almuiet & Salim, 2013).

In recent years, several authors have mixed together the concepts of KM and SC to highlighting the close links between these two concepts (K. Patil & Kant, 2014; Patil & Kant, 2014a, 2014b, 2014c; Patil & Kant, 2016). Many organizations have a lifecycle (SAFARI, AJALI, & GHASEMIYAN, 2016) that should have adopted KM by using their resources effectively and achieve competitive advantage. KM adoption in SC is time-consuming and it takes many times to show its effect on the organization. Key success factors (KSFs) of KM adoption in the SC are significant but not necessarily to implement at the same time. Even a same influencing factor may be differently important to the individual organization in SC, as each organization has its own purposes, strategies, conditions of resources and capabilities in KM adoption in SC. Hence, the aim of this study is to Assessing the key success factors (KSFs) of KM adoption in the SC. It can help the organizations to take effective decision on KM adoption in SC. Identifying and discussing the KSFs of KM adoption in SC, the factors having the greatest impact on the whole KM adoption in SC system can be found out. So the managers can just pay more attention to these KSFs and implement them to improve the efficiency of the whole SC performance. Assessing the key success factors of KM adoption in the SC is a multiple-criterion decision-making (MCDM) problem because a number of factors that affect the success of KM adoption in SC, play important role in this process. Hence, decision-maker(s) needs to use one of the MCDM methods (Chaghooshi, Arab, & Dehshiri, 2016).

This study proposes a MCDM approach using best-worst to show decision maker’s comparison judgments to decide the final priority of the key success factors of KM adoption in the SC. In this way, an empirical study presented to illustrate the proposed method and demonstrate its effectiveness.

This study highlights the key success factor of knowledge management adoption to increase and improve the performance of organization supply chain. Also this paper is one of the firs known studies in Iran with respect to KM adoption consideration in organization supply chain. Also using the application of best-worst method as a novel MCDM method is another contribution of this paper. The main goal of this paper is providing an insight for supply chain manager and findings of the study have many crucial implications for SCM, and for academia as

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well. A major implication is that managers should develop knowledge management after analyzing the key success factors of knowledge management adoption in their Supply Chain. Also identifying key success factors can help businesses to plan and implement knowledge management in order to reduce the risk of failure. The rest of the paper is organized as follows: In the next section, comments on the recent literature are summarized as concerns key success factors of KM adoption in the SC. A MCDM model based on BWM prioritize the key success factors of KM adoption in the SC is developed in Section 3. In Section 4, an empirical case conduced in an automotive company, is presented to demonstrate the efficiency of proposed method. Finally, conclusions and future research directions are provided in Section 5.

2. Literature review

Supply chain management (SCM) is defined by the Global Supply Chain Forum (GSCF) as "the integration of key business processes from end users through original suppliers that provide products, services and information which add value to customers and other stakeholders (Desai & Rai, 2016). companies have now focused more on their supply chains and hence have thought of ways to improve their supply chain management (Lotfi, Mukhtar, Sahran, & Zadeh, 2013).

Knowledge is an essential theoretical construct for under-standing organizations, and the relationship between a firm's knowledge capital and its capabilities is now widely accepted. The SCs can be considered as a cradle of knowledge because they involve multiple autonomous players with varying cultures, managerial backgrounds and SC practices. The agility, adaptability, and alignment are characteristics of knowledge flows and knowledge sharing process among SC partners (Grandori & Kogut, 2002).

Knowledge acquisition may be basically described as generational because knowledge is continuously created from past stored information and new ones gathered from the environment. The supply chain knowledge may be new knowledge obtained from social and collaborative processes. According to Soliman, Janz, Raisinghani, and Meade (2005), new knowledge can be formed through specific processes including; action learning that involves problem solving, focus on required learning, and implementation of solutions. Systematic problem solving calls for a disciplined mindset in reductionism and holistic thinking, attention to details, and pushing the boundaries of the assessment of the underlying causes. This involves learning from previous experience through reviews of the company's successes and failures, systematic assessment and transference and recording of 'lessons learned' in such a way that it will benefit the organization to the fullest.

After knowledge acquisition, a unitive repository should be built to collect sufficient supply chain knowledge. The acquisition of knowledge in the supply chain is based on each enterprise repository in the supply flow (Almuiet & Salim, 2013). The process of knowledge creation transfers and reuse that consists of capturing a part of tacit knowledge and trans-forming it into explicit knowledge that can be acquired and reused by SC members is called KM adoption in SC (Samuel, Goury, Gunasekaran, & Spalanzani, 2011). Knowledge exchange within SC adds value to the SC and it improves efficiency and has become an essential factor for the organizations to

improve their core competitiveness (Kim, Umanath, Kim, Ahrens, & Kim, 2012; Paton & McLaughlin, 2008). The development of knowledge-based SC depends on the nature of knowledge flow in the entire chain which in turn helps to maintain customer responsive-ness. SC partners will find it very useful to share decision knowledge on a timely basis. However, this requires changes in managerial mindsets and corporate culture. Further-more, support and commitment from top management are essential to ensure successful implementation of knowledge sharing (Shih, Hsu, Zhu, & Balasubramanian, 2012).

SC and KM represent two main streams of research that have significantly developed over the past several years and many related issues such as measuring success of KM adoption in the SC are still not addressed by consultants, practitioners or academia's.

There is a link between some variables such as trust, communication, commitment, and performance. Those characteristics lead to greater collaboration among SC partners and help to maintain the buyer-supplier partnership and organizations should develop trust based relationships by focusing on activities that would enhance mutual trust to enhance the benefits of cooperation and to diminish the conflicts of competition when knowledge sharing is involved (Patil & Kant, 2016; Spekman, Spear, & Kamauff, 2002).

Spekman et al. (2002) analyzed the factors which facilitate SC learning and whether SC performance is improved if learning is fostered. They demonstrated that there is a link between relational variables such as trust, communication, commitment and performance. Those characteristics seemed to lead to greater collaboration among SC partners. By exploring decision knowledge sharing and flexibility in SC structure, better operational performance can be achieved (Wadhwa & Saxena, 2006). Paton and McLaughlin (2008) highlighted the importance of service exchange for innovation. Service exchanges were presented as a determinant of sustainable growth. They focused their attention on the importance of knowledge transfer in SC exchange. Lancioni and Chandran (2009) identified intellectual capital and customer relationship management systems as the most key areas of KM in order to foster exploitation of knowledge and organizational learning in SC. Khalfan, Kashyap, Li, and Abbott (2010) analyzed knowledge capture and knowledge sharing, showing that these initiatives improve the SC integration and the production performance. SC collaboration amongst the chain members often provides larger benefits from effectively satisfying the end-customer's needs than working alone (Ramesh, Banwet, & Shankar, 2010). The SC member development has improved the SCM system especially in the areas of quality and delivery services, other services and cutting costs that manufacturers had to face due to problems that arose in the shortcomings of the supply services (Hasrulnizzam Wan Mahmood, Mat Tahar, Nizam Ab Rahman, Baba, & Deros, 2011).

Patil and Kant (2014c) Ranked the barriers of knowledge management adoption in supply chain using fuzzy AHP method. A total of 28 barriers were identified through literature review and expert's opinion. These barriers were categorized into five major criteria. The result of the study indicates that 'lack of top management commitment', 'KM not integrated in business processes' and 'lack of proper organizational structure to create and share knowledge' are the

three most important barriers of KM adoption in SC and proposed The case organization should overcome these barriers with higher priority for effective KM adoption in SC.

Patil and Kant (2014a) proposed A fuzzy AHP-TOPSIS framework for ranking the solutions of Knowledge Management adoption in Supply Chain to overcome its barriers. Through literature review and expert opinion total 28 barriers and 21 solutions of KM adoption in SC are identified and through hybrid fuzzy AHP-TOPSIS framework ranked the solutions. The result shows that Positive leadership towards KM adoption in SC is the highest rank solutions to overcome the barriers of KM adoption in SC.

(Patil & Kant, 2016) Evaluated the impact of Knowledge Management adoption on Supply Chain performance by BSC-FANP approach through an empirical case study SC partners will find it very useful to share decision knowledge on a timely basis. However, this requires changes in managerial mindsets and corporate culture (Shih et al., 2012). If top management is not committed to KM adoption in SC, it seems to have led to a situation where a common understanding concerning organizational vision, strategies and supplier/customer relationship management was not present (Nätti & Ojasalo, 2008). The information provision and empowerment of the partner's decision-making are the main variables of KM adoption in SC (Samuel et al., 2011). The attitude towards the learning and sharing of new knowledge is one of the important criteria leads to building a knowledge creation in the organization (Vithessonthi, 2008). 16 key success factors of Knowledge management adoption in supply chain are identified through an extensive literature review. Table 1 summarizes CSFs of KM adoption in SC.

Table1: Summary of literature review of KSFs of KM adoption in SC

Code	KSF	Definition	References
KS1	Training, education and empowerment of Employee	systematic effort to modify or develop knowledge/ skill/attitude through "learning" experience, to achieve effective performance in an activity or range of activities and enable employees to make decisions about their jobs	Blumenberg, Wagner, and Beimborn (2009); K. Patil and Kant (2014); Nätti and Ojasalo (2008); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016); Samuel et al. (2011)
KS2	Exchange of Knowledge in Supply Chain	Process which brings together employees of SC to exchange ideas, evidence and expertise	K. Patil and Kant (2014); Kim et al. (2012); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016); Paton and McLaughlin (2008)

Code	KSF	Definition	References
KS3	Virtual teaming	a temporary alliance of businesses that come together to share skills and resources in order to better respond to business opportunities, and whose cooperation is supported by computer networks	K. Patil and Kant (2014); Maqsood, Walker, and Finegan (2007); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016)
KS4	culture and Ethics	set of concepts and principles that guide us in determining what behavior helps or harms to improve SC performance	Hult, Ketchen, and Arrfelt (2007); K. Patil and Kant (2014); Kidd, Richter, and Stumm (2003); Maqsood et al. (2007); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016); Peng Wong and Yew Wong (2011)
KS5	Trustworthy teamwork	Working collaboratively with a group of people in order to exchange knowledge within SC	Maqsood et al. (2007); Samuel et al. (2011); Spekman et al. (2002); Vithessonthi (2008) Capó-Vicedo, Mula, and Capó (2011); Shih et al. (2012) K. Patil and Kant (2014); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016)
KS6	Mining Customer Knowledge	Pulling out the knowledge from the customer regarding the product or services	Liao, Chen, and Wu (2008); Patil and Kant (2016)
KS7	Supports of Top management	Controls, strategic planning, full financial and technical support and motivate employees to adopt KM in SC and also post adoption audit	Bandyopadhyay and Pathak (2007); K. Patil and Kant (2014); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016); Shih et al. (2012)
KS8	Defined roles and responsibilities of SC members	Each SC member roles and responsibility should be defined to pursue a set of agreed upon goals or to meet	He, Ghobadian, and Gallear (2013); Nätti and Ojasalo (2008); Patil and Kant (2016)

Code	KSF	Definition	References
		a key business need while remaining independent organizations	
KS9	Supplier Development(SD) program	long-term cooperative effort(s) between a buying firm and its suppliers to upgrade the suppliers' technical, quality, delivery, and cost capabilities to foster on going improvements	Giannakis (2008); Hutzschenreuter and Horstkotte (2010); Patil and Kant (2016)
KS10	Data and information Security	protecting a data base from destructive forces and the unwanted actions of unauthorized users	Gunasekaran and Ngai (2004); Kumar and Thondikulam (2006); Patil and Kant (2016)
KS11	Incentive alignment	formal scheme used to promote or encourage specific actions or behavior by a specific group of people during a defined period of time	Hutzschenreuter and Horstkotte (2010); Patil and Kant (2016)
KS12	Lack of Knowledge Redundancy	waste of duplicate knowledge	Patil and Kant (2016); Sivakumar and Roy (2004)
KS13	Knowledge capture	Knowledge capture makes tacit knowledge explicit, i.e. it turns knowledge that is resident in the mind of the individual into an explicit representation available to the SC	K. Patil and Kant (2014); Khalfan et al. (2010); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016)
KS14	Communication, Collaboration and Networking techniques	The techniques used for imparting or interchanging thoughts, opinions or information by speech, writing or signs and helps to share information across boundaries	Hutzschenreuter and Horstkotte (2010); Lin, Hung, Wu, and Lin (2002) K. Patil and Kant (2014); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016); Peng Wong

Code	KSF	Definition	References
		of time and space if they properly used	and Yew Wong (2011)
KS15	Organization structure	refers to the different hierarchies or levels in the organization and determines how information flows from level to level within the company	Aziz and Sparrow (2011); Desouza, Chattaraj, and Kraft (2003) K. Patil and Kant (2014); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016); Zhao, de Pablos, and Qi (2012)
KS16	Integration of knowledge and information flow	efficient knowledge flows and knowledge sharing process among SC partners ensures agility, adaptability and alignment in chain	Al-Mutawah, Lee, and Cheung (2009); K. Patil and Kant (2014); Patil and Kant (2014a, 2014b, 2014c); Patil and Kant (2016); Shih et al. (2012)

3. Research methodology

This study highlights the key success factor of knowledge management adoption in supply chain. This study in term of research methodology is a descriptive- analytics research and in term of goal is applied. Because the main objectives of the study using the results to improve supply chain performance through the use of knowledge management. Variables of this research (KSFs of KM adoption in SC) were extracted from comprehensive review of the literature that shown in table1. Assessing the knowledge management adoption in supply chain performance requires different criteria (KSF) that should be done with the participation of experts and this problem can be considered as a complex multi-criteria decision making. In this section, MCDM model based on best-worst (BWM) is presented to address the problem of assessing key success factors of Knowledge management adoption in supply chain. In short, the proposed model consists of two main stages: (1) identification key success factors of Knowledge management adoption in supply chain and (2) calculating their importance weights by BWM technique. The flowchart of the proposed MCDM model is shown in Fig. 1.

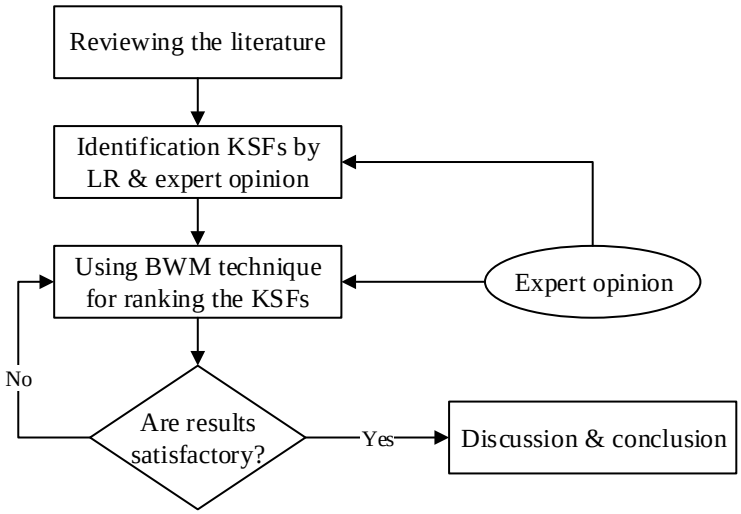

Fig. 1. Flowchart of the proposed MCDM model

3.1. The Best Worst Method

BWM is a Comparison-Oriented MCDM method that compares the best criterion to the other criteria and all the other criteria to the worst criterion. The goal is to find the optimal weights and consistency ratio through a simple linear optimization model constructed by the comparison system (Mohaghar, Sahebi, & Arab, 2017). In the literature, some papers utilized this novel MCDM approach. below is a description of the steps of BWM to calculate the weight of the criteria (Rezaei, Wang, & Tavasszy, 2015):

1) Determine the set of decision criteria $\{c_1, c_2, \dots, c_n\}$ by decision-makers.

2) Determine the best and the worst criteria to be used for the decision environment:

In this step, decision-makers choose the best and the worst criteria among the set of criteria identified in Step 1 from their perspective. The best criteria represent the most important criteria and the worst criteria are the least important criteria for the decision.

3) Determine the preference of the best criteria over all the other criteria:

A number between 1 and 9 (1: equally important, 9: extremely more important) is used to indicate this value. The resulting Best-to-Others vector would be as $A_B = (a_{B1}, a_{B2}, \dots, a_{Bn})$. Where a_{Bj} indicates the preference of criteria B (best criteria) over criteria j and $a_{BB} = 1$.

4) Determine the preference of each of the other criteria over the worst criteria:

A number between 1 and 9 is assigned to this case as well. The Others-to-Worst vector would be as $A_W = (a_{1W}, a_{2W}, \dots, a_{nW})^T$. Where, a_{jW} indicates the preference of the criteria j over the worst criteria W and a_{WW}.

5) Find the optimal weights $(w_1^*, w_2^*, \dots, w_n^*)$:

Solving the problem (1) will result in the optimal weights for the criteria. To determine the optimal weights of the criteria, the maximum absolute differences $\{|w_B - a_{Bj}w_j|, |w_j - a_{jw}w_w|\}$ for all j should be minimized.

$$\min \max_j \left\{ \left| \frac{w_B}{w_j} - a_{Bj} \right|, \left| \frac{w_j}{w_w} - a_{jw} \right| \right\}$$
$$\text{s.t.}$$
$$\sum_j w_j = 1 \qquad (1)$$
$$w_j \geq 0, \text{ for all } j$$

This model can be solved by transferring it to the linear programming formulation (2) (Ghaffari, Arab, Nafari, & Manteghi, 2017):

$$\min \xi$$
$$\text{s.t.}$$
$$|w_B - a_{Bj} w_j| \leq \xi, \text{ for all } j$$
$$|w_j - a_{jw} w_w| \leq \xi, \text{ for all } j \qquad (2)$$
$$\sum_j w_j = 1$$
$$w_j \geq 0, \text{ for all } j$$

By solving this problem the optimal weights $(w_1^*, w_2^*, \ldots, w_n^*)$ and the optimal value of ξ^* are obtained. ξ^* Is defined as the consistency ratio of the comparison system. It means that the closer ξ^* is to a zero value the more consistent the comparison system provided by the decision makers. Formula (3) is used to check the consistency of the comparisons.

$$Consistency\ Ratio = \frac{\xi^*}{Consistency\ Index} \qquad (3)$$

The consistency index can be retrieved from Table 2. The lower the consistency ratio, the higher the reliability of the comparisons.

Table 2: Consistency index table

a_{BW}	1	2	3	4	5	6	7	8	9
Consistency index	0.00	0.44	1.00	1.63	2.30	3.00	3.73	4.47	5.23

4. Case study

In this section, an empirical study conducted in an Iranian automotive company (engages in the manufacturing automobile catalysts), presented to illustrate the application of the proposed decision making model. This company's Stakeholders interested in identifying the KSFs of KM adoption in SC. Therefore 10 experts and managers were invited to survey using the research framework shown in fig1. Through the literature investigation, experts' opinions, the committee finally adopted all 16 KSFs illustrated in Table1.

At this step, BWM which was explained in section 3 utilized to obtain importance weights of KM adoption KSFs.

1. Determination of the criteria set

The criteria set is shown in the table 1.

2. Determination of the best and the worst criterion

The second step in the BWM is the determination of the best and the worst criterion. The best criterion is the one selected by each respondent as the most important KM adoption KSFs, while the worst criterion is the one which is the least important KM adoption KSFs based on the opinion of each expert. Experts of this research selected Supplier Development(SD) program (KS9) as Best criterion and Trustworthy teamwork (KS5) as Worst criterion.

3. Determination of the preference of the best criterion over all others

This step consists of identifying the preferences of the best criterion from over all others criteria. This data gained by using BWM special questionnaire. The experts are asked to compare their selected best criterion to each of the other criteria and state their preference by using a value between 1 and 9. A score of 1 implies an equal Importance over the other criteria. A score of 9 implies the most important criterion is extremely more preferred to the other criteria. Then by calculating Arithmetic mean of the 10 expert's questionnaires, aggregated Best-to-Others (BO) vector constructed, which illustrated in Table 3.

Table 3: criteria BO Vector

Best criterion	KS1	KS2	KS3	KS4	KS5	KS6	KS7	KS8	KS9	KS10	KS11	KS12	KS13	KS14	KS15	KS16
KS 9	2.5	4.8	5.9	7.9	8.8	5.9	7.1	3.9	1	2.9	6.5	7.8	8	6.9	2.2	7.4

4. Determination of the preference of all criteria over the worst criterion

This step is similar to the previous step, but in this step, the experts are asked to state their preferences of all other criteria over the least important criterion. Similarly, to the previous step, a value between 1 and 9 is used. Then by calculating Arithmetic mean of the10 expert's questionnaires, aggregated Others-to-Worst (OW) vector constructed, which illustrated in Table 4.

Table 4: criteria OW Vector

Worst criterion	KS5
KS1	8.6
KS2	6.8
KS3	4.9
KS4	5.9
KS5	1
KS6	5.3
KS7	4.1
KS8	7
KS9	8.8
KS10	7.8
KS11	4.1
KS12	3.2
KS13	2.1
KS14	2.3
KS15	7.8
KS16	2.4

5. Determination of the KSFs of KM adoption weights

The weights of KSFs of KM adoption are calculated with a linear model 2 of BWM. By solving this linear model, obtained the optimized values of KSFs of KM adoption weights and ξ^*. This results showed in Table 5.

Table 5: KSFs of KM adoption weights

KSFs of KM adoption	Weight	Rank
KS1	0.1056	3
KS2	0.0550	6
KS3	0.0447	7,8
KS4	0.0334	14
KS5	0.0160	16
KS6	0.0447	7,8
KS7	0.0372	11
KS8	0.0677	5
KS9	0.2027	1
KS10	0.0910	4
KS11	0.0406	9
KS12	0.0338	13
KS13	0.0330	15
KS14	0.0382	10
KS15	0.1200	2
KS16	0.0356	12
ξ	0.0613	
Consistency index	5.078	
Consistency Ratio	0.01208	

As can be seen from this results, in this case, 'Supplier Development(SD) program (KS9)', 'Organization structure (KS15)' and 'Training, education and empowerment of Employee (KS1)' are the most important KSFs of KM adoption and, 'Trustworthy teamwork (KS5)', 'Knowledge capture (KS13)' and 'Virtual teaming (KS4)' are the least important KSFs of KM adoption

respectively. As shown in table 5, the comparisons show a very high consistency as the value of consistency ratio of criteria is close to zero (the consistency ratio for criteria obtained 0.01208). Some suggestions provide for organization to implement this KSFs for KM adoption in their supply chain at below:

Based on results, Supplier Development program was the most important KSFs. In this way adopt Supplier Development (SD) program is a useful solution. SD programs are long-term cooperative effort(s) between a buying firm and its suppliers to upgrade the suppliers' technical, quality, delivery, and cost capabilities to foster ongoing improvements.

Establishment adequate incentives and reward systems to promote the employees to share knowledge within SC is another useful solution. One effective way of motivating workers is to provide incentives and rewards for excellent performance and recognition for a job well done. Incentives and reward systems is a formal plan used to promote or encourage specific actions.

The use of collaborative practices like Vendor Managed Inventory (VMI), Efficient Consumer Response (ECR), Enhanced Web Reporting (EWR) or Collaborative Planning as key success factors for supply chain integration.

According to high importance of Organization structure, Positive leadership towards KM adoption in SC has a positive effect on organization. Positive leadership establishes controls, perform long range planning, full financial as well as technical support and motivate employees to adopt KM in SC.

And finally making strategic alliances among the supply players has a positive impact on SC performance. A Strategic Alliance is a relationship between SC members to pursue a set of agreed upon goals or to meet a critical business need while remaining independent organizations.

5. Conclusions

The performance of KM adoption in SC may be affected by various different factors and it is always difficult for the practitioners to improve all aspects at the same time. Therefore, it is required to identify KSFs of KM adoption in SC. Hence, the managers can just pay more attention on these KSFs and implement them to greatly improve the efficiency of the organization.

In this paper, a BWM approach was proposed for assessing the KSFs of KM adoption in SC in an Iranian automotive company. An empirical study demonstrated proposed method to rank the KSFs of KM adoption in SC. Total 16 KSFs identified by extended literature review. The result shows that the Supplier Development program, Organization structure and Training, education and empowerment of Employee are the most important KSFs of KM adoption in the supply chain in this research case respectively. This proposed method, BWM presented a novel, valid and reliable approach for assessing the KSFs of KM adoption. These KSFs ranking helps organization to decide their strategies to achieve successful KM adoption in their supply chain. This study has some limitations. First, we limited this study to Iranian firms. Future studies can conduct in other industrials and countries. And also the results of this study can be compared

with other MCDM Methods like SWARA, ANP, HAW or fuzzy MCDM methods Like fuzzy DEMATEL to overcome the inherit imprecise and vagueness of this problem.

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