

## A Survey on Effective Factors on Knowledge Management Establishment in Guilan Province's Paint Industry

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### ABSTRACT

Capacity of knowledge management and its related skill is the main competitive advantage for most organization in the modern economy. Thus, knowledge management is well proposed as a suitable competitive tool to achieve success in a knowledge-oriented economy. Today, it is clearly necessary for organizations and public or private firms to measure the available knowledge. To have this done requires determining main indicators and measuring them by appropriate tools to detect their quantitative and qualitative values to be able to try to improve them. Hence, having a good cognition of the status of organizational knowledge is an important element for successful implementation of knowledge management. The present paper seeks the relationship between effective factors on knowledge management in Guilan's paint industry based on 7C model. The descriptive – correlation methodology is used here. In terms of the purpose, this paper is of applied type. The population consists of all active paint-manufacturing companies in Guilan and the sample is involves 127 individuals. Hypotheses were statistically tested using deductive analysis methods. The correlation coefficient was also used to examine effect of seven components (independent variables) on knowledge management (dependent variable). At the end, linear regression equation was applied to predict the magnitude of the effect of each component and to estimate knowledge management in Guilan's paint industry. The researcher, analyzing the result of questionnaires, concluded that variables of consumption, cooperation, creation, knowledge allotment and expansion, constraining, exchange and culture, respectively, highly contribute to establishment of knowledge management in four paint-manufacturing companies considered in this article and, accordingly, results are presented in the form of final pattern. Also, based on result of Friedman's test and the average of variables' ranks, it was determined that from respondents' point of view the variable of exchange has the highest score and then variables of knowledge allotment and expansion, cooperation, creation, constraining, culture and consumption have lowest scores, respectively.

**KEYWORDS:** knowledge management, variable of consumption, cooperation, creation, knowledge allotment and expansion, exchange, variable of culture.

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### INTRODUCTION

Knowledge management gained its popularity through applying knowledge to develop coordination in exerting dynamic shift in an organization and to develop systems assist the organization in adjusting itself with changes in its surrounding environment. Organization must create and apply new knowledge and reconstruct the old one to be able to achieve their goals. Knowledge management puts great emphasize on information technology and, in many cases, is defined as management based on technology (Malhotra, p 66). In fact, knowledge management encompasses the optimized process of mixing knowledge and information in an organization and providing a proper climate to produce, distribute and use knowledge and to train productive and innovative human work forces. Why knowledge management must be used? The most important purposes of an organization in better managing its knowledge include maintaining key members, enhancing the incitement system, identifying the environment and improving services to customers (Mc Kroomak, 2007, p 27). The knowledge available in the system of knowledge management is seen as an asset or capital which makes the management more effective through providing investments in other fields. Knowledge management is a scientific course, relying on mutual support (simultaneous competition and aid between the provider and recipient of knowledge and information), encourages and promotes the development, occupation, organization and application of information (Oliver, 2009, p 36). The ability of an organization to create, distribute and apply the available knowledge of products, processes and

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human labor to increase efficiency of the workplace and to reduce ineffective activities in called "knowledge management" (Malhotra, 2008, p66). Knowledge management provides access to experiences, knowledge and proficiency which, in turn, develops new capabilities, improves performance, increases innovation, recruits available information and knowledge capital in the organization, facilitated knowledge and information distribution in various organizational scopes and integrates knowledge and information in current business processes (Bhatt, 2009, p 69). Therefore, the main purpose of the present paper is to establish knowledge management, based on the model and considered variables, in Guilan's paint industry.

### **Theoretical Principles**

Based on literature, the average of education among employees of organizations and the number of staff working in research and development sections is increasing. In addition, the ratio of research credit to gross domestic production is also increasing in Iran. These indicate that organizations tend toward knowledge-based activities. Knowledge-based activities are also more emphasized in large scales of the society. Iranian 20-year Perspective Act is a good example in which achieving a knowledge-based economy is of great importance. Moreover, the fourth chapter of the fourth economic plan law is about knowledge-based development (Abtahi and Salavti, 2006, p 35). The complex concept of knowledge and existence of various approaches to knowledge management result in lack of a single approach toward this subject. "Soknanan" states that some definitions of knowledge management are presented in such a way that degrade it event to the level of data management (Ghahramani, 2007, p86). Knowledge management is typically interpreted as the process of applying, acquiring and distributing the knowledge and detection of knowledge, as the main component of knowledge management, is neglected or not emphasized properly. Efficiency has a new definition in knowledge era production knowledge is prior to production itself as the criterion of efficiency (Alvani, 2007, p416). Considering the significance of knowledge measurement it is necessary to determine its qualitative and quantitative level and make efforts to enhance it through identification of main indicators using appropriate methods (Ghahramani, 2007, p86). Hence, having a proper cognition of the status of organizational knowledge is a key factor in successful implementation of knowledge management (Blackler, 2009, p22). If a complete cognition is achieved, knowledge management processes could be implemented by adopting suitable strategies and having perfect planning. In fact, the organization gains good results from knowledge management only when it tries to plan and progress having complete and precise information about knowledge status (Georgios, 2008, p12). In other words, it can be said that knowledge management is the systematic approach of creating, receiving, organizing, achieving, and using knowledge and thing learned in an organization. Based on researchers' observations, knowledge management helps these firms to improve decision-making, be more flexible, increase profitability, reduce work load, increase efficiency, create new business opportunities, reduce costs and expenditures, gain more proportion of the market, and improve employees' incentives (Cameron, 2011, p23). Accordingly, the goal of this paper is to present a proper pattern to implement knowledge management in these firms.

Knowledge management is a complex and dynamic subject. Various models are formed, based on the approach adopted by most scholars toward knowledge management, most of which are identical in terms of content but use different words and phases. The predominant assumption of these models is that steps and activities are often simultaneous, sometimes successive and seldom in a linear order. But the main point in almost all models is the significant emphasize on using and applying knowledge, and other steps act as an introduction to provide for the application of knowledge. The competition among business agencies and, also, the innovation rate is increasing rapidly. This competition leads those agencies toward declining the number of their human resources (the valuable resources of knowledge) to reduce their costs. The reduction in human forces makes organizations reiterate their implicit knowledge for employees (Milton, 2009, p3). In the present business world most of our tasks and activities are information-based and there not much time to experience and gain knowledge. Organizations compete in this situation based on their level of knowledge. Their products and services become more complex every day and their share of information increases. Here knowledge management, possessing proper tools and requirements, develops a great opportunity to improve the performance of human resources and competitive advantages. Today, all bid and small organizations need to implement knowledge management in order to stay in the cycle of competition. Achievements of knowledge management in present organization include: flexibility and rapid response to variable environmental conditions, better usage of human resources and their knowledge, and making better decisions (Mentzas, 2003, p2). The notion of knowledge does not necessarily mean to transfer information, but knowledge mean productivity (innovation), creativity and dynamism. Accordingly, a

knowledgeable organization creates ideas and uses new ideas and thus achieves competitive advantage (Henrie, 2008, p33).

Unfortunately, most organization imitating pioneer ones in the present competitive situations always face various changes and dynamism competitive process. Because when an opportunity is omitted or changed in the flow of knowledge, another expresses which challenges the organization and id referred to as the process of "creative destruction". Generally, acquiring, maintaining and enhancing competitive advantage is the main concern of almost all managers. In this context, management thinkers and scientists believe that the organization knowledgebase is the only basis of formation, maintenance and enhancement of competitive advantage. In their point of view sustainability of competitive advantage depends on innovation and innovation id affected by the mentioned knowledgebase (Oliver, 2009, p36).

The present paper investigates effective factors on knowledge management base on the model of "Steve Trent" and "Chrissy McKarken" (called 7C model). This model is based on seven words beginning in "C" and thus is called 7C model. Seven components of this model include: Creating, Constraining, contributing, cooperation, consuming, communicating and culture.

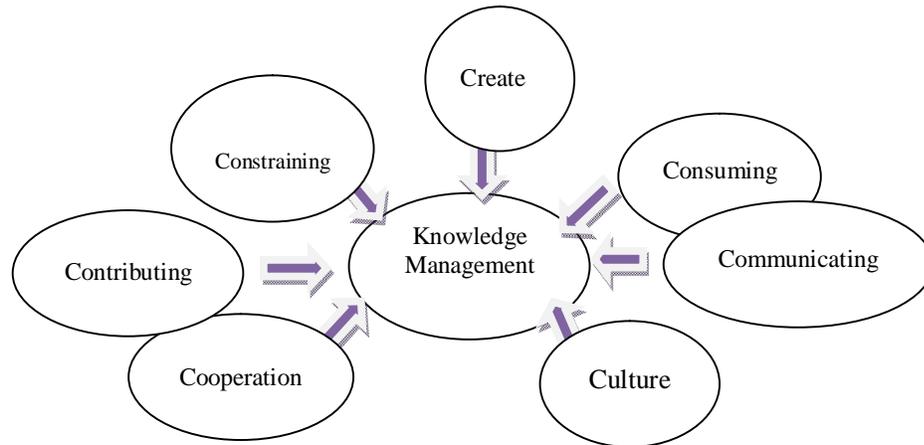


Chart 1: The realized conceptual model of the relationship between components and knowledge management based on the 7C model (Afrazeh, 2007, p14)

### Hypotheses

The main hypothesis of the research states: "based on the 7C model, there is a relationship between effective factors of the model and establishment of knowledge management in Guilan's paint industry". The main hypothesis is converted to seven side hypotheses as follows:

1. There is a relationship between the "being creative" component and establishment of knowledge management in Guilan's paint industry.
2. There is a relationship between the "being constraint" component and establishment of knowledge management in Guilan's paint industry.
3. There is a relationship between the "contributing and expansion of knowledge" component and establishment of knowledge management in Guilan's paint industry.
4. There is a relationship between the "cooperation" component and establishment of knowledge management in Guilan's paint industry.
5. There is a relationship between the "communication" component and establishment of knowledge management in Guilan's paint industry.
6. There is a relationship between the "consumption" component and establishment of knowledge management in Guilan's paint industry.
7. There is a relationship between the "culture" component and establishment of knowledge management in Guilan's paint industry.

### RESEARCH METHODOLOGY

The scope and target of the present paper is of applied type and data are gathered using descriptive method. The analysis type is correlation. It is of applied type since results are usable for various groups of planners and managers. Also, it is descriptive because it considers current processes and evident effects of the present time. Correlation is the main goal of this research in order to determine whether there is a relationship between research variables. "Multiple Regression" shows the

share of seven effective variables on knowledge management based on the research model. Finally, variable are ranked using Friedman's test. The population consists of all staff of paint-manufacturing factories in Guilan province. According to a report by Guilan's Organization of Industry, Mine and Commerce, in the first half of 2011, four factories had the highest level of activity and production in the province to which the researcher referred to fill questionnaires. Considering the population (220 individuals) and the research topic, the sample size was determined to be 120 individuals.

**Hypotheses Testing**

*Testing the First Side Hypothesis*

**First side hypothesis:** There is a relationship between the "being creative" component and establishment of knowledge management in Guilan's paint industry.

Table 1: Model summary of variables of Creation and establishment of knowledge management

| Independent variable | Dependent variable                    | Correlation coefficient | Correlation coefficient square | Level of significance | Independent variable's coefficient | Constant |
|----------------------|---------------------------------------|-------------------------|--------------------------------|-----------------------|------------------------------------|----------|
| Creation             | establishment of knowledge management | 82.7                    | 68.4                           | 0.000                 | 3.5                                | 10.9     |

According to this table, the variable of "creation" has a direct relationship of 82.7 percent on the variable of knowledge management establishment in firms and factories considered in this study. Consequently, the first side hypothesis, namely, the "being creative" component and establishment of knowledge management in Guilan's paint industry, is confirmed. Also, based on the square of R, it can be said that in this study, 68.4 % of changes of the variable of knowledge management establishment in paint industry of Guilan can be described by the variable of "being creative". Also, the following equation is true to assess establishment of knowledge management based on the variable of "being creative":

$$\text{Knowledge management establishment} = 3.5 \times \text{creation} + 10.9$$

**Second side hypothesis:** There is a relationship between the "being constraint" component and establishment of knowledge management in Guilan's paint industry.

Table 2: Model summary of variables of being constraint and establishment of knowledge management

| Independent variable | Dependent variable                    | Correlation coefficient | Correlation coefficient square | Level of significance | Independent variable's coefficient | Constant |
|----------------------|---------------------------------------|-------------------------|--------------------------------|-----------------------|------------------------------------|----------|
| Constraining         | establishment of knowledge management | 70.8                    | 50.1                           | 0.000                 | 3.56                               | 8.7      |

According to this table, the variable of "constraining" has a direct relationship of 70.8 percent on the variable of knowledge management establishment in firms and factories considered in this study. Consequently, the second side hypothesis, namely, the "being constraint" component and establishment of knowledge management in Guilan's paint industry, is confirmed. Also, based on the square of R, it can be said that in this study, 50.1 % of changes of the variable of knowledge management establishment in paint industry of Guilan can be described by the variable of "being constraint". Also, the following equation is true to assess establishment of knowledge management based on the variable of "being constraint":

$$\text{Knowledge management establishment} = 3.56 \times \text{constraining} + 8.7$$

**Third side hypothesis:** There is a relationship between the "contributing and expansion of knowledge" component and establishment of knowledge management in Guilan's paint industry.

Table 3: Model summary of variables of contributing and expansion and establishment of knowledge management

| Independent variable       | Dependent variable                    | Correlation coefficient | Correlation coefficient square | Level of significance | Independent variable's coefficient | Constant |
|----------------------------|---------------------------------------|-------------------------|--------------------------------|-----------------------|------------------------------------|----------|
| Contributing and expansion | establishment of knowledge management | 73.9                    | 54.4                           | 0.000                 | 3.7                                | 9.8      |

According to this table, the variable of "contributing" has a direct relationship of 73.9 percent on the variable of knowledge management establishment in firms and factories considered in this study.

Consequently, the third side hypothesis, namely, the "contributing" component and establishment of knowledge management in Guilan's paint industry, is confirmed. Also, based on the square of R, it can be said that in this study, 54.4 % of changes of the variable of knowledge management establishment in paint industry of Guilan can be described by the variable of "contributing". Also, the following equation is true to assess establishment of knowledge management based on the variable of "contributing":

$$\text{Knowledge management establishment} = 3.7 \times \text{contributing} + 9.8$$

**Fourth side hypothesis:** There is a relationship between the "cooperation" component and establishment of knowledge management in Guilan's paint industry.

Table 4: Model summary of variables of cooperation and establishment of knowledge management

| Independent variable | Dependent variable                    | Correlation coefficient | Correlation coefficient square | Level of significance | Independent variable's coefficient | Constant |
|----------------------|---------------------------------------|-------------------------|--------------------------------|-----------------------|------------------------------------|----------|
| Cooperation          | establishment of knowledge management | 82                      | 67.2                           | 0.000                 | 4.4                                | 7.8      |

According to this table, the variable of "cooperation" has a direct relationship of 82 percent on the variable of knowledge management establishment in firms and factories considered in this study. Consequently, the fourth side hypothesis, namely, the "cooperation" component and establishment of knowledge management in Guilan's paint industry, is confirmed. Also, based on the square of R, it can be said that in this study, 67.2 % of changes of the variable of knowledge management establishment in paint industry of Guilan can be described by the variable of "cooperation". Also, the following equation is true to assess establishment of knowledge management based on the variable of "cooperation":

$$\text{Knowledge management establishment} = 4.4 \times \text{cooperation} + 7.8$$

**Fifth side hypothesis:** There is a relationship between the "communication" component and establishment of knowledge management in Guilan's paint industry.

Table 5: Model summary of variables of communication and establishment of knowledge management

| Independent variable | Dependent variable                    | Correlation coefficient | Correlation coefficient square | Level of significance | Independent variable's coefficient | Constant |
|----------------------|---------------------------------------|-------------------------|--------------------------------|-----------------------|------------------------------------|----------|
| Communication        | establishment of knowledge management | 64.1                    | 41.1                           | 0.000                 | 3.5                                | 8.7      |

According to this table, the variable of "communication" has a direct relationship of 64.1 percent on the variable of knowledge management establishment in firms and factories considered in this study. Consequently, the fifth side hypothesis, namely, the "communication" component and establishment of knowledge management in Guilan's paint industry, is confirmed. Also, based on the square of R, it can be said that in this study, 41.1 % of changes of the variable of knowledge management establishment in paint industry of Guilan can be described by the variable of "communication". Also, the following equation is true to assess establishment of knowledge management based on the variable of "communication":

$$\text{Knowledge management establishment} = 3.5 \times \text{communication} + 8.7$$

**Sixth side hypothesis:** There is a relationship between the "consumption" component and establishment of knowledge management in Guilan's paint industry.

Table 6: Model summary of variables of consumption and establishment of knowledge management

| Independent variable | Dependent variable                    | Correlation coefficient | Correlation coefficient square | Level of significance | Independent variable's coefficient | Constant |
|----------------------|---------------------------------------|-------------------------|--------------------------------|-----------------------|------------------------------------|----------|
| Consumption          | establishment of knowledge management | 86.6                    | 78.4                           | 0.000                 | 3.9                                | 10       |

According to this table, the variable of "consumption" has a direct relationship of 86.6 percent on the variable of knowledge management establishment in firms and factories considered in this study. Consequently, the sixth side hypothesis, namely, the "consumption" component and establishment of knowledge management in Guilan's paint industry, is confirmed. Also, based on the square of R, it can be said that in this study, 78.4 % of changes of the variable of knowledge management establishment in

paint industry of Guilan can be described by the variable of "consumption". Also, the following equation is true to assess establishment of knowledge management based on the variable of "consumption":

$$\text{Knowledge management establishment} = 3.9 \times \text{consumption} + 10$$

**Seventh side hypothesis:** There is a relationship between the "culture" component and establishment of knowledge management in Guilan's paint industry.

Table 7: Model summary of variables of culture and establishment of knowledge management

| Independent variable | Dependent variable                    | Correlation coefficient | Correlation coefficient square | Level of significance | Independent variable's coefficient | Constant |
|----------------------|---------------------------------------|-------------------------|--------------------------------|-----------------------|------------------------------------|----------|
| Culture              | establishment of knowledge management | 49.4                    | 24.4                           | 0.000                 | 2.9                                | 13       |

According to this table, the variable of "culture" has a direct relationship of 49.4 percent on the variable of knowledge management establishment in firms and factories considered in this study. Consequently, the seventh side hypothesis, namely, the "culture" component and establishment of knowledge management in Guilan's paint industry, is confirmed. Also, based on the square of R, it can be said that in this study, 24.4 % of changes of the variable of knowledge management establishment in paint industry of Guilan can be described by the variable of "culture". Also, the following equation is true to assess establishment of knowledge management based on the variable of "culture":

$$\text{Knowledge management establishment} = 2.9 \times \text{culture} + 13$$

**The main hypothesis:** Based on the 7C model, there is a relationship between effective factors of the model and establishment of knowledge management in Guilan's paint industry.

Table 8: Summary of step wise multi-variable regression analysis

| Independent variable                                       | Dependent variable                 | Correlation coefficient | Correlation coefficient square | Significance level | Independent variable's coefficient        | Constant |
|--|------------------------------------|-------------------------|--------------------------------|--------------------|---|----------|
| Consumption  | Knowledge management establishment | 75.1                    | 56.5                           | 0.000              | 2.75                                      | 10.3     |
| Consumption and contributing                               |                                    | 80.9                    | 65.5                           | 0.000              | 1.98<br>1.52                              | 7.6      |
| Consum. Contribu. create                                   |                                    | 83.4                    | 69.6                           | 0.000              | 1.2<br>1.4<br>1                           | 6.9      |
| Consum. Contribut. Create Communicate                      |                                    | 85.6                    | 73.2                           | 0.000              | 1<br>1.1<br>1<br>0.99                     | 4.8      |
| Consum. Contribut. Create Communicate culture              |                                    | 87.1                    | 75.8                           | 0.000              | 0.88<br>0.98<br>1<br>1<br>0.86            | 3.4      |
| Consum. Contribut. Create Communicate Culture Constraining |                                    | 87.6                    | 76.7                           | 0.000              | 0.60<br>1<br>0.88<br>0.95<br>0.90<br>0.67 | 2.4      |

Based on above tables and hypotheses testing it is evident that all variables of the research have a direct relationship with knowledge management establishment in the four considered companies. Thus the main hypothesis of the present paper, namely, based on the 7C model there is a relationship between effective factors of the model and establishment of knowledge management in Guilan's paint industry, is confirmed. On the other hand a step wise multivariable regression analysis is used to investigate the effect of each of the seven variables on knowledge management. In the step wise method variables are introduced to the model one by one and this continues until the significance testing error approaches 5%. In the initial step the first factor, consumption, was introduced to the model the coefficient of its correlation with the dependent variable was estimated to be 0.751. In this step the determinant coefficient was  $R^2 = 0.565$  and the adjusted determinant coefficient were 0.561. In the second step "contributing" entered the model. The multiple-correlation coefficient, determinant coefficient and adjusted determinant coefficients increased to 0.809, 0.655 and 0.659, respectively. The third step included entering knowledge "creation" and the increase of multiple-correlation coefficient to 0.834, of determinant coefficient to 0.696

and of adjusted determinant coefficient to 0.688 was observed. In the fourth step "communicating" entered the model and the multiple-correlation coefficient, determinant coefficient and adjusted determinant coefficients increased to 0.856, 0.732 and 0.723, respectively. "Culture" was introduced to the model in the fifth step and the multiple-correlation coefficient, determinant coefficient and adjusted determinant coefficients increased to 0.871, 0.758 and 0.748, respectively. Finally, "constraining" entered the model and the multiple-correlation coefficient increased to 0.876, the determinant coefficient to 0.767 and the adjusted determinant coefficient to 0.755.

Thus, variables entered the multi-variable regression model.

$$Y = C + B1X1 + B2X2 + B3X3 + B4X4 + B5X5 + B6X6$$

Y= dependent variable (knowledge management establishment)

X1= independent variable (consumption)

X2 = independent variable (contributing the knowledge)

X3 = independent variable (creation)

X4 = independent variable (Communicate)

X5 = independent variable (culture)

X6= independent variable (constraining)

The estimated model is:

$$Y = 2.485 + 0.606X1 + 1.068X2 + 0.883X3 + 0.955X4 + 0.901X5 + 0.671X6$$

Investigating the effect of all seven variables on knowledge management, they were ranked using the Friedman's test, based on respondents' viewpoint.

| Company              | Average ranks of variables |            |                           |                        |                |
|----------------------|----------------------------|------------|---------------------------|------------------------|----------------|
|                      | Pars Simin                 | Kadoos Fam | Knaan chemical industries | Kasra paint industries | Four companies |
| <b>Variable</b>      |                            |            |                           |                        |                |
| <b>Communication</b> | 6.28                       | 6.32       | 6.1                       | 5.93                   | 6.23           |
| <b>Contributing</b>  | 4.41                       | 4.46       | 4.75                      | 4.1                    | 4.40           |
| <b>Culture</b>       | 3.35                       | 3.62       | 2.2                       | 3.25                   | 3.32           |
| <b>Cooperation</b>   | 4.09                       | 3.86       | 4.65                      | 3.88                   | 4.03           |
| <b>Creation</b>      | 3.44                       | 3.34       | 4.7                       | 3.8                    | 3.49           |
| <b>Consumption</b>   | 3.16                       | 3.26       | 3.5                       | 2.98                   | 3.19           |
| <b>Constraining</b>  | 3.28                       | 3.09       | 3.21                      | 4.08                   | 3.34           |

According to output of the above table is was clear that the average rank of each variable is different among companies, based on Friedman's test. The ranking in Pars Simin company is as follows: communicate, contributing, cooperation, creation, culture, consumption, constraining. In Kadoos Fam company the ranking is: communicate, contributing, cooperation, culture, creation, consumption, constraining. In Kanaan Chemical Industries it is: communicate, contributing, creation, cooperation, consumption, constraining, and culture. And, the ranking in Kasra Paint Industries id as follows: communicating, constraining, cooperation, creation, culture and consumption. Also, as sum up in all companies "communicating" has the highest score and contributing, cooperation, creation, constraining, culture and consumption have the lowest scores, respectively (in respondents' viewpoint).

### DISCUSSION AND CONCLUSION

- According to the first side hypothesis of the research and results of questionnaires it is concluded that the independent variable of "creation" has a direct relationship of 82.7% with the dependent variable of "knowledge management establishment". This means that these variables have a positive and significant relationship. Also, the effect of "creation" equals 0.684% which indicates that 68.4% of the changes of knowledge management establishment in studied companies are influenced by the predictor variable of "creation", in respondents' point of view. Results of this hypothesis are consistent with a study by "Young" (2008) on "creation of knowledge management and paying attention to institutionalization of knowledge management in state organizations.
- According to the second side hypothesis of the research and results of questionnaires it is concluded that the independent variable of "constraining" has a direct relationship of 70.8%

- with the dependent variable of "knowledge management establishment". This means that these variables have a positive and significant relationship. Also, the effect of "constraining" equals 0.501% which indicates that 50.1% of the changes of knowledge management establishment in studied companies are influenced by the predictor variable of "constraining", in respondents' point of view.
- According to the third side hypothesis of the research and results of questionnaires it is concluded that the independent variable of "contributing the knowledge" has a direct relationship of 73.9% with the dependent variable of "knowledge management establishment". This means that these variables have a positive and significant relationship. Also, the effect of "contributing the knowledge" equals 0.545% which indicates that 54.5% of the changes of knowledge management establishment in studied companies are influenced by the predictor variable of "contributing", in respondents' point of view. "Boroomand" (2008) report same results. Thus, improvements in staff performance result in an increase in acquiring and contributing aspects of knowledge management.
  - According to the fourth side hypothesis of the research and results of questionnaires it is concluded that the independent variable of "cooperation" has a direct relationship of 82% with the dependent variable of "knowledge management establishment". This means that these variables have a positive and significant relationship. Also, the effect of "cooperation" equals 0.672% which indicates that 67.2% of the changes of knowledge management establishment in studied companies are influenced by the predictor variable of "cooperation", in respondents' point of view.
  - According to the fifth side hypothesis of the research and results of questionnaires it is concluded that the independent variable of "consumption" has a direct relationship of 86.6% with the dependent variable of "knowledge management establishment". This means that these variables have a positive and significant relationship. Also, the effect of "consumption" equals 0.784% which indicates that 78.4% of the changes of knowledge management establishment in studied companies are influenced by the predictor variable of "consumption", in respondents' point of view.
  - According to the sixth side hypothesis of the research and results of questionnaires it is concluded that the independent variable of "communicating" has a direct relationship of 64.1% with the dependent variable of "knowledge management establishment". This means that these variables have a positive and significant relationship. Also, the effect of "communicating" equals 0.411% which indicates that 41.1% of the changes of knowledge management establishment in studied companies are influenced by the predictor variable of "communicating", in respondents' point of view. This is consistent with results of "Saedi" et al, emphasizing on communicating and exchanging available information to implement knowledge management.
  - According to the seventh side hypothesis of the research and results of questionnaires it is concluded that the independent variable of "culture" has a direct relationship of 49.4% with the dependent variable of "knowledge management establishment". This means that these variables have a positive and significant relationship. Also, the effect of "culture" equals 0.244% which indicates that 24.4% of the changes of knowledge management establishment in studied companies are influenced by the predictor variable of "culture", in respondents' point of view. This is consistent with results of "Hosnavi" (2009). He states that promotion of knowledge management culture shifts the focus of managers toward the importance of this variable.
  - Based on results of these seven hypotheses (which were confirmed), the main hypothesis if the research (based on the 7C model, there is a relationship between effective factors of the model and establishment of knowledge management in Guilan's paint industry) is confirmed.
  - Also, according to Friedman's test, it is evident that communicating, contributing, cooperation, creation, constraining, culture and consumption have the highest scores, respectively.

### Suggestions

Suggestions are presented based on the evaluation of patterns in various sections of studied companies and specifically for each functional scope of the organization. These suggestions consider practical and executive strategies of knowledge management activities in various sections of companies and organizations. They are classified based on different functional scopes in an organization to provide for better usage.

1. Designing a system to gain and communicate information on identification of products and services of other identical firms helps managers to make decisions based on different aspects of the competitive environment (especially information on software products and services of rivals including technical characteristics and facilities of these systems).
2. Establishing relationships and communications with research and advisory centers and receiving articles to contribute and expand the knowledge enables managers to use perfect information of experts in various organizational fields. Research and advisory centers can provide managers with successful experiences in other firms.
3. Designing, developing and creating knowledge map as an illustration of physical resources, such as writings and files, and software resources, such as databases, and informed individuals with expertise and skills result in gaining information about tangible and intangible assets of knowledge and applying that information in decision-making processes.
4. Holding instructional workshops related to new subjects in the business, such as E-marketing, and document management, results in an increase in managers' knowledge and shows them various methodologies for optimized application of physical and nonphysical resources. Also, these workshops typically distribute and propagate information among organizational officials.
5. Forming cross functional teams for cooperation and knowledge exchange in projects. These teams enable individuals with various skills to come together and use the knowledge of one another. Also, as a result of variety of skills and expertise it becomes possible to learn unofficially and express new ideas. On the other hand, networks and communities of practice can be established which, although are not evident in the formal structure of a firm, act as informal institutions and interests, experiences, common expertise and solving organizational problems are the basis for their activities. Development of such networks is not focused today but the play a significant role in distributing the knowledge.
6. Conducting Yellow Pages to constrain the organization to determining better ideas results in the facility of access to experts for individuals and teams. These Yellow Pages can be in form of written pages, documents or software files. Conducting them as software has a main advantage: staff can enter the organization's website, whether inside or outside of the organization, activate related files and find suitable individuals with needed skills and contact them through specified routes (such as Email or telephone number) to use their required information. On the other hand, it is possible to design a bank of costumers' data to keep their information in order to plan for services and requirements. This database (data bank) contains all information about costumers, type of delivered services, the frequency and number of times of receiving the service, etc.
7. Putting value on staff based on their knowledge, experience and especially their efforts to promote the culture of knowledge sharing is important. To have this done, attracting the most empowered and the most experienced people must become a priority for the organization.

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