

***The Study of Relationship Between Work Teams  
and Favoring Knowledge Management(Case:  
Bank Keshavarzi)***

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**Abstract**

Knowledge management is a process that has been recently generated as an activity which is very important in the dynamic environment, and in the competitive scene. We believe that KM is a process which its organizational knowledge is created from the individual knowledge of the members of the organization. The relevant studies have indicated that organizing based on work teams could be considered a way to create the appropriate context for KM. However, this organizing based on work teams is not enough; it only has the necessary characteristics of the work teams that favor KM. Moreover, based on studies done, we distinguish which characteristics of work teams favor the KM process in its different phases (i.e. creation, transfer and integration). In this study, we conducted multiple regression and analysis of variance.

Complementary skills (H2) and a climate of trust (H3) in work teams were more important factors that favor the management of organizational knowledge.

This research is based on the Zarraga and Perez studies in 2006.

**Keywords:**

Knowledge management, Work teams, Knowledge creation, Transfer and integration of knowledge.

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## **Introduction**

The worldwide economy has shifted from an industrial manufacturing/product-oriented economy to one based on knowledge and services, where the principle commodity is information or knowledge. Effective management of intellectual capital is a critical issue challenging organizations in today's global and knowledge-driven economy (Walczak, 2005).

In contrast to the traditional emphasis on external factors to explain organizational success (Porter, 1985), recent strategic management literature has focused on internal resources (Miller and Shamise, 1996). Some authors, such as Grant (1996b) and Nonaka et al (2001), claim that knowledge is the main source of sustainable competitive advantage. If we review the specialist literature in search of models of knowledge management that can help companies to take full advantage of that resource, we will find that the activity must center on three specific aspects. First, it is necessary to create the resource. Knowledge, by definition is buried in the minds of individuals (Fahey and Prusak, 1998; Grant, 1996a; Nonaka and Takeuchi, 1995) and therefore, those individuals are responsible for its creation. Secondly, the knowledge that has been created by each of the individuals within the organization will have to be transferred from those individuals to others in order to be shared. Thirdly, those separate pieces of knowledge, once transferred and received, will have to be integrated and thus become one mass of knowledge (Zarraga and Falcon, 2003).

So, we can conceptualize knowledge management as a process which its input is the individual knowledge of a person, which is created, transferred and integrated in work teams within the company, while its output is organizational knowledge, a source of competitive advantage (see figure 1). Along those lines, Grant (1997) states that many current tendencies in organizational design may be interpreted as attempts to access and integrate the tacit knowledge of members of an organization, while at the same time recognizing the barriers to transferring that

knowledge. This reflects the need for a close interdependence between specialists in order to integrate their know-how (Grant, 2001).

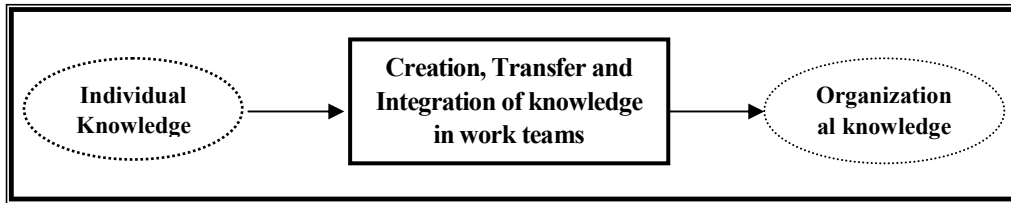


Figure1: Concept of KM

Source: Zarraga and Falcon, 2003

### **Subjectpresentation**

Knowledge management is a process that not only has been noticed by organizations recently, but it has also generated great changes in the business world. In order favoring knowledge management, some of researchers emphasized on team work. The management practice field shows that the past two decades have witnessed a dramatic increase in the use of work teams. From Grant's (1997, 2001) point of view, this new tendency of organizational design could be considered a way to access the tacit knowledge of the organizational members and so a way to create the appropriate context for knowledge management. However, for individual knowledge to become organizational knowledge, it is not sufficient to organize the firm around work teams (Zarraga and Perez, 2006).

In consequence, the fundamental question of the research is: What is the relationship between the work team and knowledge management?

So, our hypothesis is that the knowledge management process does not happen in just any work team, but only in one with the especial characteristics. So, the first objective is to identify the characteristics that a work team needs to favor knowledge management. Then, the second objective is to test empirically how those characteristics exercise a favorable influence on knowledge management, which is conceptualized as a process of creation (C), transfer (T) and integration (I) of the work team members' knowledge. The rest of the paper is organized as it follows.

The next section develops the theoretical background for the paper. The third section describes the methodology used to test the hypotheses empirically. Finally, the main conclusions are given based on the results obtained.

### **Theoretical development of knowledge management**

The competitive scene that companies have faced in recent years is characterized by a high level of dynamism (Zarraga and Perez, 2006). The increasing speed of the changes in markets, products, technologies, competitors, regulations and even in society means important structural variations that modify what is strategic for organizations (Teece, 1998). To summarize, knowledge of environment is a key strategic resource that permits organizations to achieve sustainable competitive advantages (Grant, 1996; Nonaka et al, 2001; Ruggles, 1998).

Cook and Brown (1999) state that the knowledge generation process includes all activities by which new knowledge are generated within the organization. There are several modes of knowledge generation, namely:

Acquiring mode where the new knowledge is acquired from external sources.

Externalizing mode where the convertible tacit knowledge of the members of the organization is conceptualized, articulated and externalized.

Discovering mode where the knowledge hidden in the data sources of the organization is discovered.

Synthesizing mode where the new knowledge is generated either by integrating the newly generated and validated knowledge with the existing knowledge or by combining the existing knowledge.

Producing (creation) mode where the new knowledge is produced by interacting with the things in cognitive domains of the enterprises.

Knowledge management may be defined as doing what is needed to get the most out of knowledge resources (Armbrecht et al, 2001). It focuses on organizing and making available important knowledge (Sabherwal and Becerra-Fernandez, 2003), and then creating organizational knowledge (Nonaka, 1994, Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998).

The main problem in doing this is that knowledge is a resource created within the individual (Nonaka and Takeuchi, 1995), or as Grant

(1996b) says, knowledge is embedded in the members of the organization in a specialized way. Therefore, the challenge for knowledge management is to know how to transform individual knowledge into organizational knowledge, which amounts to something more than the sum of those members' individual knowledge and its owner is the organization.

The knowledge management process has been studied by many authors (Hendlud, 1994; Nonaka and Takeuchi, 1995; Grant, 1997) and in summarizing their ideas, we can say that individual knowledge once created has to undergo a process of transfer and integration that gives rise to organizational knowledge. This process will occur in different, but linked, ontological levels. Firstly, knowledge created (creation) in the mind of each individual of a small group should be transferred to others (transfer), then, that shared knowledge should be assimilated among them (integration), thus generating the group knowledge (which is now part of organizational knowledge). Afterwards, the knowledge born in every group will be transferred and integrated between groups in a single work place, department, and area or similarly, leading to knowledge of higher ontological level. Finally, the transfer and integration of knowledge created in other sections of the firm will give rise to organizational knowledge (Zarraga and Perez, 2006).

In the light of the review carried out, the function of the organization must center on supporting these creative individuals by providing them with the appropriate setting for the creation of knowledge. That is, that setting must be such that it makes the organization resemble individual initiative (Zarraga and Falcon, 2003).

### **A knowledge management structure**

Since traditional organizations are vertically structured around tasks and functions, they are not suitable for sharing knowledge at the organization level. Analogously, other elements of hierarchal structure such as rigid adherence to organization chart hamper knowledge flow. In contrast, improving the company's core competency in the current networked economy depends on leveraging and sharing of knowledge more than managing the people themselves. Accordingly, the real power must now shift not only to those who acquire the knowledge, but more importantly to those who possess the talent for leveraging knowledge.

A knowledge organization of figure 2 is composed of knowledge groups that are composed of knowledge teams, which are built from knowledge workers selected for participation on a knowledge team due to their tacit knowledge and skills. Ideally, the knowledge workers on any knowledge team come from different organizational (and educational) backgrounds and will bring a diversity of tacit knowledge and skills to the team (Walczak, 2005).

The recognition of individual personnel as knowledge workers will promote the development of new knowledge teams to address the organization's opportunities and consequently will facilitate the development of knowledge team communities that are diverse and more focused on knowledge-oriented problem solving. Knowledge workers are expected to share and utilize knowledge with other team members to produce the highest quality decisions. New knowledge teams and groups must be promoted to develop around product lines or other core competencies of the enterprise as opposed to functional area team composition. Knowledge teams should be created dynamically to take advantage of the organization's business opportunities or new business strategies. Knowledge teams that identify the need for specific knowledge would then recruit knowledge workers that had the desired tacit knowledge to join the team. The role of a knowledge librarian or expertise locator system can facilitate the identification and location of knowledge workers with desired tacit knowledge and skills (walczak, 2005).

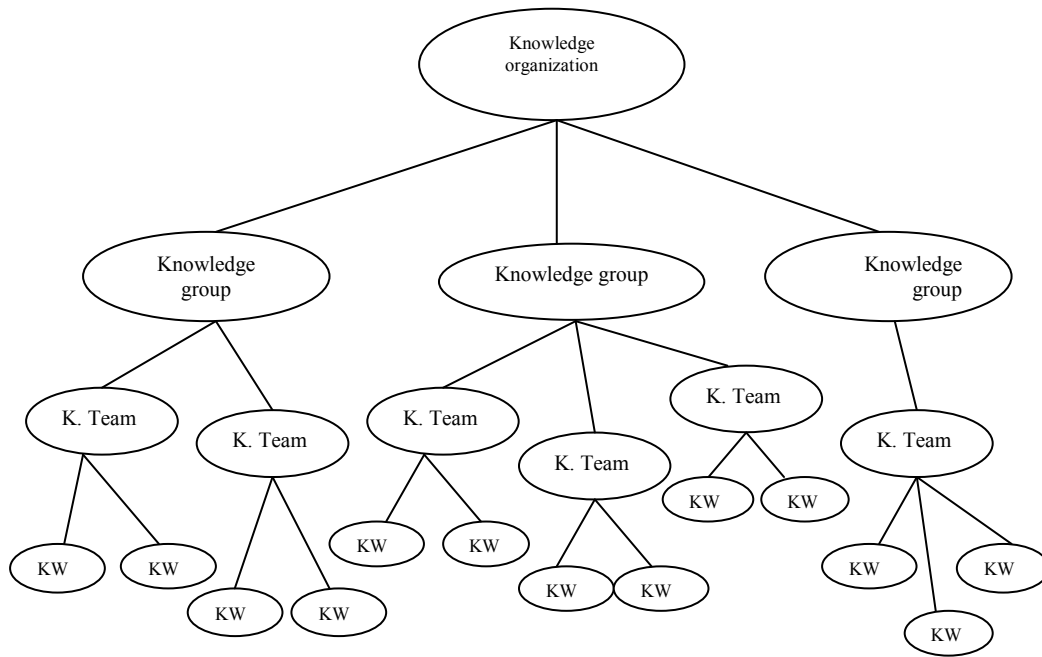


Figure2: Element of the knowledge organization hierarchy

*KW: knowledge worker*

*Source: Walczak, 2005*

### Work team

A work team is a group of interdependent individuals who solve problems or complete tasks within an organizational context, share responsibility for the results and are seen by themselves and by others as an intact social entity belonging to a larger social system, and which manages its relationship within the confines of the organization (Alderfer, 1977; David et al, 1989; Galve and Ortega, 2000).

Some authors (Hildrech et al, 2000; Hutchins, 1995) say that work teams can become communities of practice when they begin to develop informal relationships and change the sources of legitimization. In a team, legitimacy occurs principally through the assignment of formal roles and relationships, while members of a community of practice (work team) establish their legitimacy through interaction about their practice (Hildrech et al, 2000).

Moreover, face-to-face contact and close personal relationships are the basis for a community of practice, because when the members get to know one another and they have a sense of mutual trust, they gain legitimacy in the eyes of the others (Zarraga and Perez, 2006).

Characteristics of work teams to favor knowledge management.

In general, the literature on knowledge management indicates which factors affect the creation, transfer and integration (CTI). Therefore, in this section of paper, we will attempt to represent one group of factors favoring knowledge management in work teams.

According to Nonaka (1994), self-management is the first characteristic which requires that the team should become a social context in itself, within which personal knowledge can be expanded. So, to favor knowledge management it is necessary to build self-management teams. In self-managed teams the important decisions are made and executed by the teams (Kirkman and Rosen, 1999).

Self-managed teams are part of formal structure of the organization. Based on the above discussion, we propose the following hypothesis:

H1. The self-managed team favors the knowledge management (CTI)

High levels of team autonomy may actually decrease individual autonomy and responsibility is diffused rather than granted to a single individual when important decision making is shared rather than carried out alone (Uhl-Bien and Graen, 1998). This aspect is positive for the work team to function as a community of practice, because it favors group cohesion (Baron and Kreps, 1999).

But, in the knowledge management literature individual autonomy is considered an important aspect for creating organizational knowledge (Nonaka and Takeuchi, 1995; Fahey and Prusak, 1998; Nonaka et al, 2001). In this way, the probability of introducing unexpected opportunities increases. Moreover, according to Zarraga and Perez (2006), individual autonomy will be a source of individual self-motivation to favor knowledge management, especially to knowledge creation. Based on that, we set out our second hypothesis as following:

H2. The team where members have individual autonomy favors the knowledge management (CTI)

In the light of previous argument, if members of work teams are distinguished by participation and the exchange of ideas, complementary knowledge is also necessary. This could create a positive synergy (Lazear,



1998), because when individuals with heterogeneous and complementary skills join a team, everyone can apply different structures and mental models that produce multifaceted dialog (Leonard and Sensiper, 1998; Robbins, 2001). Moreover, the interactions between individuals with different and diverse knowledge structures will increase the organizational capability for creating knowledge (Nelson and winter, 1982; Nonaka and Takeuchi, 1995). So, heterogeneous and complementary skills are another important characteristic for favoring knowledge management. As a result of those arguments we establish the following hypothesis.

H3. The team where members have heterogeneous and complementary skills favors the knowledge management (CTI)

According to Grant (1996b), common language between the members will facilitate the function of the mechanisms of knowledge integration, allowing the team to share the aspects not of common knowledge to all its members. However, bearing in mind that, for the effective co-ordination of a work team its size must be limited, it is impossible within the group to have access to the entire range of specialist knowledge necessary for the activity (Grant, 1997). Consequently, the tendency is usually towards the construction of a structure based on teams where the members are changed if it becomes necessary, at the same time guaranteeing a certain redundancy of knowledge flowing within the organization (Nonaka and Takeuchi, 1995). This leads us to the condition that common language must be a reality of the organization and not just of the group. Based on that, we propose the following hypothesis:

H4. The team where members have a common language favors the knowledge management (CTI)

In general, the work teams do not need complex organizational structures but their members need time and space to collaborate. They do not need much management but they do need leadership. Thus Wenger (1999) says that, in order to legitimize the community-which could be a team- as a place for sharing and creating knowledge, the figure of the team leader is necessary. The main task of the leader is to co-ordinate and focalize the different viewpoints found within the work team (Leonard and Straulss, 1997; Leonard and Sensiper, 1998). In addition, following Elpper and Sukowski (2000), team leader must provide not only real and virtual spaces for communication, but also guidelines for the team. The function

of leaders is to serve as a model to the collaborators, and so, they should be prepared to share information openly, put themselves in the others' shoes, provide constructive feedbacks and show all those attitudes and behaviors associated with encouraging knowledge management (Zarraga and Perez, 2006). Therefore, we set out the fifth hypothesis as follows:

H5. The team where a leader exists favors the knowledge management (CTI)

The members of work teams value participation and invest their professional prestige in the team if there is a good atmosphere. If this atmosphere does not exist, then interpersonal co-operation, essential for the generation of true organizational knowledge, will not take place (Zarraga and Bonache, 2003).

The literature on knowledge management has described this atmosphere as one of true internal collaboration among group members (Miles et al, 1998) that goes beyond mere communication and information exchange (El Sawy et al, 1997).

Within the knowledge management literature, trust is often discussed as an important element for successful knowledge management ventures (e.g., Bukowitz & Williams, 1999; Rolland & Chauvel, 2000; Roberts, 2000).

Trust has been discussed extensively with respect to knowledge generation. However, it has been suggested that trust is required for it to thrive. For instance, Probst, Raub and Romhardt (2000) discuss that there should be trust in the tolerance of mistakes; this enhances the culture for knowledge creation. The trust discussed with respect to knowledge generation is organizational trust. Knowledge generation not only occurs within individuals, but it also occurs within groups or teams. Knowledge generation within a group often requires individuals to share their knowledge and information (which involves the second knowledge process of knowledge transfer) in order for a new knowledge to be created. The most commonly discussed knowledge management process with respect to trust is knowledge transfer (i.e. knowledge sharing). It is frequently commented that in order for people to be willing to share their knowledge, they must have trust (e.g., Davenport & Prusak, 1998; Podolny & Baron, 1997; Kramer, 1999).

It has even been commented, "Trust is, after all, the single most important precondition for knowledge exchange" (Rolland & Chauvel, 2000).

More specifically, trust has been discussed as prerequisite for tacit knowledge sharing (e.g., Roberts, 2000; Rolland & Chauvel, 2000). While it has not been extensively discussed, knowledge generation within a group or team setting is presumed to require trust. However, the more the organizational policies and regulations support knowledge generation for the group, then trust’s importance decreases to the extent that controls and policies replace trust. On the other hand, if distrust is present, then knowledge generation will be blocked, as fear, cynicism, Wariness will prevent an individual from sharing required knowledge or information with the team to generate new knowledge (Ford, 2001). Von Krogh, Ichijo and Nonaka (2000) make recommendations for creating trust for knowledge management. The recommendations are the followings:

- Create a sense of mutual dependence.
- Make trustworthy behavior part of the performance evaluation.
- Increase individual reliability by creating a map of expectations.
- Share personal information in smaller groups.
- Use symbolic gestures for interdependency (Von Krogh et al., 2000).

It amounts to the “mental” element of what Nonaka and Konno (1998) call a “shared organizational context”. Von Krogh (1998) calls it “high care” and states that high care will be present in the team as long as the following premises exist: mutual trust, active empathy, lenience in judgment, courage and access to help. In the light of these considerations, we can establish that a climate of trust is important to knowledge management:

H6. The team with a climate of trust favors the knowledge management (CTI)

To summarize, figure 3 shows the list of factors favoring the CTI of knowledge in work teams, each of which has given rise to a research hypothesis.

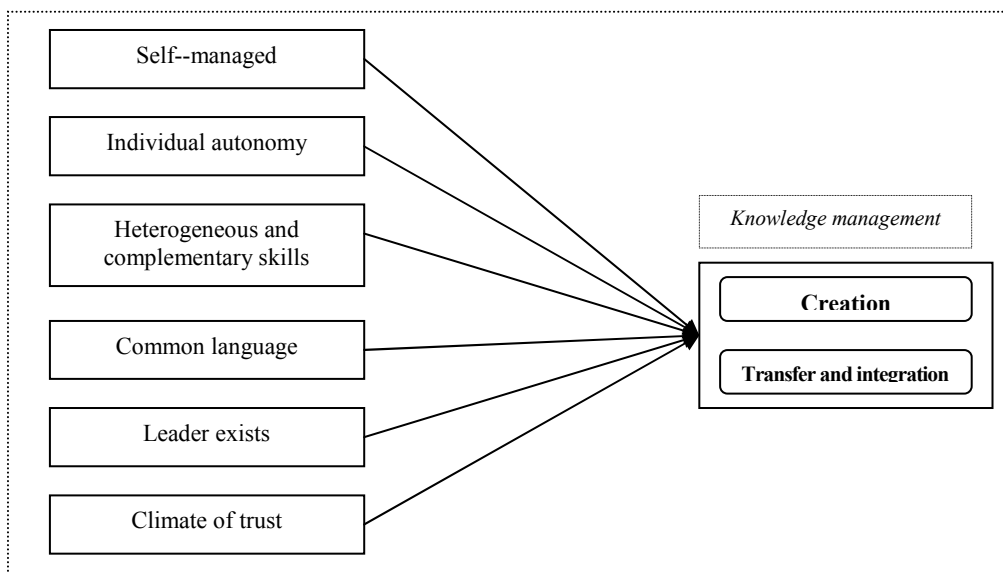


Figure3: Factors favoring the KM (CTI) in work teams: conceptual model

### Research methodology

We tested our research hypotheses through a field experiment. In order to empirically check the proposed model of factors favoring the knowledge management (i.e. creation, transfer and integration) in work teams, we carried out in a process of information gathering by questionnaires.

### Population and sample

The population under study was comprised of employees working in 151 branches of Bank Keshavarzi located in four regions of Tehran and worked in permanent teams at least for the last two years (1500 employees). The method chosen for sampling was stratified random sampling in which subjects were selected based on the proposed regions in Tehran. In this study, a sample of 384 employees, using the following formula, had participated for four months of field work (Dec.2006 to Mar. 2007).

$$n = \frac{(Z_{1-\alpha/2})^2 p(1-p)}{\varepsilon^2}$$

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{0.05^2} = 384$$

### Data collection

The survey was administrated offsite by researchers. A questionnaire was sent to each member in the sample. The researchers returned at the end of daily shift to collect the completed questionnaires from the team members. If questionnaires were not completed at that time, the researchers returned the next day. This process continued for a 14-day period, until all team members had been reached and given several

opportunities to complete the questionnaires. At last, there were 384 questionnaires sent to the members of the proposed sample, and 320 of them were collected for analysis.

Fifty eight percent of the respondents were male. Most of the respondents (71 percent) had at least ten years of experience of working in the bank. Fifty nine percent had completed high school, while an appreciable thirty nine percent had university graduate degrees and The remainder had elementary education. Sixty five percent of respondents were in specialist ranks, twenty percent in executive ranks and 15 percent in managerial ranks.

### **Measurements tools (questionnaire, validity, reliability)**

Information was collected on a number of demographic variables, work experience, and the experience of working in teams. Thirty four items were used to measure the respondents' perception about the characteristics of a work team to favoring knowledge management. The questionnaire was divided in two sections. The first section had 20 items about the characteristics of work teams (i.e. self-management, individual autonomy, heterogeneous and complementary skills, common language, leadership, climate of trust) to favor creation of knowledge and, the second had 14 items about the characteristics of work teams (i.e. self-management, individual autonomy, heterogeneous and complementary skills, common language, leadership, climate of trust) to favor transfer and integration of knowledge. We used those items (34 items) that the literature considers to favor knowledge management.

Using a five-point Likert scale, the respondents indicated the extent from very little to very much with 34 statements (1= strongly disagree, 5= strongly agree).

In order to test the validity factor of scale, first, we customized (based on conceptual framework and field study) a standard questionnaire that was used by Zarraga and Perez (2006) and then, some of experts and senior specialists of banking system and academic people confirm validity of scale (face validity). In addition, to test the factor reliability of scale, we carried out several Cronbach's  $\alpha$  analyses. Reliability analyses were carried out for the joint scale and for each of its dimensions, and  $\alpha$ -

values of between 0.6 and 0.8 indicate that we obtained acceptable measuring instruments (The results of Cronbach's  $\alpha$  analyses for each of the dimensions are shown in table 1).

**Table 1: Analysis of reliability of the scales used to measure the factors favoring the knowledge management (CTI) in work teams**

<i>Factor</i>	<i>Cronbach's alpha of creation</i>	<i>Cronbach's alpha of transfer and integration</i>
<b>Self-management</b>	0.752	0.782
<b>Individual autonomy</b>	0.633	0.852
<b>Common language</b>	0.757	0.846
<b>Member's heterogeneous and complementary skills</b>	0.740	0.815
<b>Leadership</b>	0.826	0.844
<b>Climate of trust</b>	0.732	0.799

### **Analysis**

In this study, we conducted multiple regression and analysis of variance (ANOVA). We used forward method to enter variables in the model. Then, we analyzed the data by software of SPSS15. In order to set about testing the hypotheses, the data were analyzed in two phases. In the first phase, we conducted regression analyses to assess the relative importance of each characteristics of the work team to the degree of knowledge creation in the team. In the second phase, we conducted same process to the degree of transfer and integration of knowledge in work teams. Finally, we created a new variable from combining both the factors of C and TI to obtain a composite measure of knowledge management (CTI) in work team. That variable was calculated from weighted average of the two extracted factors of C and TI.

### **Result**

To test the relative importance of characteristics of the work team to favor knowledge management, we conducted three multiple regression analyses. In all of them, the six characteristics (i.e. self-management,

individual autonomy, heterogeneous and complementary skills, common language, leadership, climate of trust) were entered as predictor variable. However, the criteria variable were changed: in the first analysis, the way for the creation of knowledge in the team, in the second, the degree of transfer and integration of knowledge, and in the third, the degree of knowledge management (CTI) in the team. The results obtained from these analyses are shown in table 2.

Table 2: Multiple regression analysis

Factor	Creation			Transfer and integration			KM (CTI)		
	B	t	sig	B	t	sig	B	t	sig
Self-management(f1)	0.839	31.302	0	-0.038	-4.168	0	-0.443	-8.603	0
Member's heterogeneous and complementary skills(f2)	-0.209	-7.682	0	0.693	60.733	0	0.894	16.398	0
Climate of trust(f3)	0.226	7.123	0	0.619	60.36	0	0.704	11.919	0
Leadership(f4)	-0.495	-18.484	0	-0.185	-23.59	0	-0.317	-7.219	0
Individual autonomy(f5)	0.337	13.025	0	-0.48	-44.49	0	-0.254	-4.711	0
Common language(f6)	0.095	3.567	0	0.071	7.685	0	-	-	-

We then conducted analysis of variance (ANOVA) to assess level of significance of the regression model. The results of this analysis indicated that the model is significant (table 3). Also, the results of analysis stated that the model's R square is 0.780 (table 4). So, the 78 percent of changes related to criterion variable were explained by predictive variables.

Table 3: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	165.060	1	165.060	353.192	0.000 <sup>a</sup>
	Residual	143.940	308	0.467		
	Total	309.000	309			
2	Regression	195.651	2	97.825	264.955	0.000 <sup>b</sup>
	Residual	113.349	307	0.369		
	Total	309.000	309			
3	Regression	212.856	3	70.952	225.821	0.000 <sup>c</sup>
	Residual	96.144	306	0.314		
	Total	309.000	309			
4	Regression	229.422	4	57.355	219.827	0.000 <sup>d</sup>
	Residual	79.578	305	0.261		
	Total	309.000	309			
5	Regression	241.068	5	48.214	215.759	0.000 <sup>e</sup>
	Residual	67.932	304	0.223		
	Total	309.000	309			

a. Predictors: (Constant), f2

b. Predictors: (Constant), f2, f5

c. Predictors: (Constant), f2, f5, f3

d. Predictors: (Constant), f2, f5, f3, f1

e. Predictors: (Constant), f2, f5, f3, f1, f4

f. Dependent Variable: km

It can be seen one factor is significantly related to both knowledge creation and its transfer and integration. That is a climate of trust. Thus, hypothesis 6 was completely supported. Although, hypothesis 4 (members' heterogeneous and complementary skills) was supported, that was only significantly related to knowledge transfer and integration (TI). Moreover, factors referring to self-management and individual autonomy were significantly related only to knowledge creation. So, hypotheses 1 and 2 were only partially supported. The fifth hypothesis, which deals with leadership, was not totally accepted, that is, this factor (leadership) does not favor the creation as well as transfer and integration of knowledge. Finally, H3 (common language) was not accepted, because that influence very little the forecast dependent variable, so this factor did not enter in the model.

**Table 4: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.731 <sup>a</sup>	0.534	0.533	0.68362127
2	0.796 <sup>b</sup>	0.633	0.631	0.60763063
3	0.830 <sup>c</sup>	0.689	0.686	0.56053145
4	0.862 <sup>d</sup>	0.742	0.739	0.51079569
5	0.883 <sup>e</sup>	0.780	0.777	0.47271609

a. Predictors: (Constant), f2

b. Predictors: (Constant), f2, f5

c. Predictors: (Constant), f2, f5, f3

d. Predictors: (Constant), f2, f5, f3, f1

e. Predictors: (Constant), f2, f5, f3, f1, f4

f. Dependent Variable: km



It can be seen that the relative importance of each characteristic of the work team to knowledge management varies according to which component of the process is being explained. Therefore, climate of trust is the characteristic that best explains the degree of KM in the work team. In addition, it had an especially strong influence on both phases of the process (i.e. C and TI). However, the other factors had favorable effects of varying intensity on each of the process phases.

### **Conclusion**

In this study, we have obtained empirical confirmation that knowledge management is favored in work teams which possess certain characteristics: self-management, individual autonomy, heterogeneous and complementary skills, common language, leadership, climate of trust. To do this study, knowledge management in work teams was conceptualized as a process of creation (C), transfer and integration (TI) of the members' knowledge. The results permitted not only the verification of a positive and significant relationship between the work teams' characteristics and knowledge management in such groups, but also a detailed examination of that relationship. So we have obtained evidence about what characteristics of work teams favor the knowledge management process in its different phases, therefore contributing to filling a gap in the literature.

Thus the analyses revealed that the characteristic of a work team that most noticeably influences the whole process of the CTI of knowledge is that labeled as climate of trust. Consequently the study results show that a climate of trust enhances knowledge management in the team and so favors the creation of individual knowledge as well as its transfer and integration. As Zarraga and Bonach (2003) point out, if this atmosphere does not exist in the work team, then interpersonal co-operation, essential

for the generation of true organizational knowledge, will not take place. However, other characteristics of the work team are seen to favor specific phases of knowledge management. To be more specific, the members' heterogeneous and complementary skills are significantly related only to knowledge transfer and integration (TI). That supports the theoretical approaches that reveal the interactions between individuals with different and diverse knowledge structures will increase the organizational capability to achieve innovation beyond which any individual member can achieve (Nelson and winter, 1982; Nonaka and Takeuchi, 1995).

When individuals with heterogeneous and complementary skills join a team, everyone can apply different structures and mental models that produce multifaceted dialog (Leonard and Sensiper, 1998; Robbins, 2001).

Moreover, factors referring to self-management and individual autonomy are significantly related only to knowledge creation. According to Nonaka (1994), self-management is the first characteristic that the team should have to become a social context in itself, within which personal knowledge can be expanded. In addition, in the knowledge management literature individual autonomy is considered an important aspect for creating organizational knowledge (Nonaka and Takeuchi, 1995; Fahey and Prusak, 1998; Nonaka et al, 2001).

The fifth hypothesis, which deals with leadership, is not totally accepted, that is, this factor (leadership) does not favor the creation, transfer and integration of knowledge. As Elpper and Sukowski (2000) point out, team leader must provide not only real and virtual spaces for communication, but also guidelines for the team. The main task of the leader is to co-ordinate and focalize the different viewpoints found within the work team (Leonard and Straulss, 1997; Leonard and Sensiper, 1998).

Finally, the factor of common language is not accepted, because that does not influence the forecast dependent variable, so it did not enter in the model.

On the whole, in the light of empirical results of this study and review of the literature, we identify the factors determining that a work team favors knowledge management as: self-management, individual autonomy, members' heterogeneous and complementary skills, common language, leadership, and climate of trust. These six factors were

corroborated by the theoretical literature and some researches (Zarraga and Perez, 2006; Zarraga and Falcon, 2003).

Although, this paper provides evidence for the necessary characteristics of work teams that favor knowledge management, but more research is needed in order to study other characteristics of work teams that could favor knowledge management process (creation, transfer and integration (CTI)).

### **Limitations**

The research carried out is not without its limitations, two of which should be stressed. A significant one is the limitation with its units of analysis. We recognized that the group rather than the individual would have been a more suitable unit of analysis. However, this approach could not be adopted in our study since we only had data from 60 complete teams. This is the reason why we have used individual level measures. Future research should employ group measures to determine more conclusively the extent to which these characteristics affect the knowledge management (CTI) in work team.

A second limitation is the scope of research. Since, the Bank Keshavarzi (Agricultural Bank) is comprised of 1833 of branches in 35 regions (States) of Iran and each of those has unique characteristics and diversity of subcultures, so the results of this research could not be extended to the other units of the bank.

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