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# DESIGNING THE MODEL TO DEMONSTRATE THE IMPACT OF HUMAN DEVELOPMENT INDEX (HDI) ON KNOWLEDGE MANAGEMENT (KM)

**(Case study: Telecom Industry)**

**Sara Seyed Esmaeil Sarraf[1], Peyman Akhavan[2*], Zeinolabedin Amini Sabegh[3]**

[1]*Department of Knowledge Management, Science and Research branch, Islamic Azad University, Tehran, Iran*
[2]*Department of Management and Industrial Engineering, Malek Ashtar University of Technology, Tehran, Iran*
[3]*Department of Management and human science, Saveh Branch, Islamic Azad University, Saveh, Iran*

**Corresponding Author's Email: akhavan.peyman@gmail.com*

## ABSTRACT

**Aim** – The purpose of this paper is to offer explanation model of the effect of Human Capital Development Index (HDI) on Knowledge Management (KM) so in the present study with respect to role and importance of Knowledge Management it has been tried to explain a model to review the effect of human capital development on Knowledge Management on telecom industry.

**Methodology**– In this paper after a survey on different frameworks on one side, Knowledge Management with 4 major activities of producing and attaining knowledge, will be investigated and from the other side with respect to human capital development indexes including Life expectancy, education, yearly income, will be evaluated.

**Results** – Based on the performed analysis, variables of life expectancy and education don't have a good status on human capital development indexes, but yearly income index is at a suitable status. Also, regarding review of parameters relating to Knowledge Management on telecom industry, storing and organizing knowledge variable, is at a good status and variables of producing and attaining knowledge and dispersion and share of knowledge are at moderate status and use of knowledge variable is at an undesirable status. In total, results show that improvement on human capital development indexes will directly result into improvement of performance on Knowledge Management on telecom industry.

**Conclusion** – Knowledge is considered as one of the key resources at disposal of organizations. Today knowledge and Careful management on knowledge capitals is among necessities of survival on today's complicated world.

***Keywords: Knowledge Management, Human Capital Development Indexes, Knowledge Production, Storage of Knowledge, Dispersion of Knowledge, Use of Knowledge***

## INTRODUCTION

In today's world knowledge is considered as one of the key resources at disposal of organizations. Today knowledge and correct management knowledge capitals are among the necessities of survival on today's complicated world. Organizations have found out that in order of remaining on competition and attaining long term success, they have no choice other than using Knowledge Management systems for fulfillment of their desired future. Knowledge Management systems are accepted and being used as one of the information systems of advanced management on organizations.

Mechanisms of Knowledge Management include technical and human/social mechanisms, support of Knowledge Management and eventually support of Knowledge Management processes. In this regard, examination and identification of affecting factors on Knowledge Management has a great importance since one of the Knowledge Management factors is human/social mechanism, therefore examination of affecting factors on their human capital development has a great importance. One of the primary criteria's regarding human resources is the indexes related to human capital development. Knowledge Management has a direct connection with effectiveness of technologies, transfer and knowledge acts as an interval on this field. Knowledge Management provides the needed opportunity for recovery of related parameters to technology transfer process, organization performance improvement and finally reaching to competitive advantage. The purpose of Knowledge Management

and Knowledge Management mechanisms on organizations is discovery, storage, development share and use of knowledge as the most important intangible and spiritual capital. Achieving to the mentioned purpose will be possible from many approaches but less researches regarding performance evaluation of these mechanisms has been done. Evaluation of Knowledge Management performance because of non-observable and intellectual nature of knowledge-based resources is complicated and difficult and success of Knowledge Management mechanisms is not predictable, and its performance will be evaluated on long term.

## LITERATURE REVIEW

Since creating backgrounds of innovation emergence by providing necessities such as Knowledge Management, mangers support and appropriate organizational culture is the source of competitive advantage of today's organizations. Explaining effective factors on them has a great importance. Today Knowledge Management has turned into the primary subject of competitive and dynamic organizations. Organizations have turned to related subjects of knowledge and wisdom management for increasing competitiveness and innovation and leaders of organizations try to perform Knowledge Management desirably on their organizations and may be even some organizations faced failure on this path. The thing that has a great importance here is identification of critical factors of success on Knowledge Management area, on first step and after that expansion of these factors to the desired organization.

Human development index is among important factors of development and it has many applications on national and international levels. Most important application of this index is identification of economic, social and cultural backgrounds which because of policy making needs more support and attention and finally providing necessary arrangements for improving social and economic condition of country. As it was mentioned, lack of adequacy of yearly income criteria and economic growth on determination of citizens' welfare resulted into that some of economists focus their attention to indexes that in addition to economic variables, cover social and human variables as well, one of the most important of these indexes, is human development index (Rauyruen & Miller, 2007). About human development, human is introduced as the source of development and new theories of growth and development mostly are dependent on human. This means that investing on physical and intellectual dimensions of humans is considered as the most valid condition of moving towards efficient economic development.The main purpose of human development, is serving to human and humanity. Raising capabilities and abilities, flourish of talents, expansion of occupational opportunities, increase of income and improvement of life quality of humans is among the final aims of human development.

In today's world, industrializing and development of information technologies has resulted into more various functionalities of communication and Telecommunication industry and with the purpose of offering better demanded services of countries, support from growth and development of various technologies. Yet in the new Millennium, communication industry considering global business necessities needs to counter with problem of increment of unpredictability of work environment and competitiveness of market. Transition from production-based economy to economy based on knowledge and growth of information and communication technologies is also among other factors of uncertainty emergence on market. Pervasive Influence of new and complicated technologies and facts of global sub-structures, forces telecommunication industry to take a more strategic role on leading and converting market-based economy to knowledge-based economy. These organizations in order of prevailing against internal and international competitors, should equip themselves with strategic plans and programs. So, knowledge has turned into an important and vital resource on reduction of uncertainty and the only viable source for attaining competitive advantage on telecommunication companies (Lee & Wu, 2013). As Liao, Palvia and Lin (2006) shows, only companies who contribute in creation and use of knowledge, can benefit from advantages of business Rectification on knowledge-based economy. So, Knowledge Management has turned to one of the most important systematic functions of advanced telecommunication organization's and helps in enhancing functionality and effectiveness of them for surviving on today's competitive environment. Thus, Knowledge Management will turn into a competitive weapon for moving forward and drawing more successes on uncertain future of telecommunication industry. Despite that telecommunication industries play a vital role on knowledge-based management of countries, yet it seems that the amount of Knowledge Management studies on telecommunication industry is very low. Additionally, very few articles have attempted to address Preliminary factors of success on Implementation of Knowledge Management. Since correct Implementation of Knowledge Management

projects usually requires lots of budget and telecommunication companies are also at the beginning of Implementation of Knowledge Management path, evaluation of Implementation level of each of success factors of Knowledge Management on organizations has an importance in such a way that some of these factors can be prioritized and appropriately implement on industry. With respect to the lack of studies and relative importance of this industry on economy, and competitive advantage that Knowledge Management brings, study and reviewing about the role of Knowledge Management on telecommunication and communication organizations seems to be necessary (Tseng, 2007).

Chiang *et al.*, (2005) defines Knowledge Management as the process of creation, Modernization, systematic application, direct and conscious of knowledge which is used for maximizing knowledge effectiveness and efficiency from knowledge belongings. Knowledge Management can be considered as a way for enhancement of functionality, efficiency and competitiveness and a way for absorbing the best experiences and increase of speed on fulfilling customer needs and a way for becoming into a more creative organization with more innovations. With respect to increasing recognition from advantages of Knowledge Management, various studies have attempted to offer a comprehensive list of success factors of Knowledge Management.

Wang *et al.*, (2008) define success factors of Knowledge Management as activities and key procedures which should be considered for getting certain about successful implementation of Knowledge Management plans. He continued that these activities and procedures in case if they exist from before, need to grow and bloom and in case they are not even planned, some way for their development should be searched. On the manner of confronting with success factors, they should be treated as internal environment factors which are countable by organization and not as external environment forces that organization has a little control over them upon implementation of Knowledge Management. With respect to these points, Davenport, De Long and Beers (1998) identified 8 factors of success factors on Knowledge Management and Rauyruen and Miller (2007) had offered 5 factors.

## RESEARCH METHODOLOGY

This study from purpose aspect is practical and in terms of implementation manner it is descriptive. In relation with study variables, two overall categorizations exist for these variables. First group includes independent variables and second group includes dependent variables. Each one of these two groups are explained in following:

**(A) Independent variable:** It is a feature of social or physical environment which after choosing, accepts a modification by researcher so that its effect can be observed on the other variable (dependent variable).
Independent variable on this study is human capital development indexes in which we want to see their effect on Knowledge Management.

**(B) Dependent variable:** It is a variable where its modifications are under influence of independent variable. Dependent variable on this are the activities of Knowledge Management such as production and attainment of knowledge, storage and organization of knowledge, emission and share of knowledge and use of knowledge. In terms of subject domain of research, human capital development and Knowledge Management indexes are evaluated on telecom industry and strategic management area. Locational area of study is also about development of human capital and its relationship with Knowledge Management on telecom industry. Time domain is also from May of 2016 till January of 2017.

**Statistical population of study**

Statistical population on this study includes 100 experts and active staff on telecom industry. Thus, mentioned statistical population is limited.

According to the statistical population of this study, telecom industry experts are limited, therefore on this study Cochran's formula is used for sampling based on above formula and substituting values, number of samples should consider 92 persons which for solving the effect of unreceived questionaries' are incomplete, 20% was added to the number of respondents and the questionnaire was sent for 120 people. Finally, sample among 100 respondents whose questionnaires were selected for evaluation was received for analysis.

**Telecom industry**

Today's organizations are acting on a complicated and competitive environment. Survival and keeping profitability on such circumstances requires fast reaction and coordination with environmental changes. Competition, complication and instability makes management process difficult and increases the

necessity of making the right decisions. Today with daily increase of competition, market condition is more complicated and using Knowledge Management has resulted into a strong competitive advantage for active organizations on various industries. But statistics show that between 50 to 80 % of Information Technology projects are unsuccessful, whether on in time delivery, or going beyond budget, resources and predicted time or not satisfying customer needs or their expectations (Bai, Law and Wen, 2008).

Industrializing and advance in information technologies has resulted into that telecommunication and communication industry find more various functions and with the purpose of offering better services demanded by countries, supports of growth and development at different technologies. Yet in the new millennium, communication industry with respect to global business necessities is forced to cope with the problem of unpredictability increment of work environment and competitiveness of market. Transfer from production-based economy to knowledge-based economy and growth of information and communication technologies is also among other factors of uncertain emergence on market. Global penetration of new and advanced technologies and the facts of global sub-structures, forces telecommunication industry to take a more active role on leading and converting market economy to knowledge-based economy. These organizations in order of prevailing against their national and international competitors, should equip themselves to strategic programs and plans. Thus, knowledge has turned into a vital and important source on decrease of uncertainty and the only viable source for getting competitive advantage on telecommunication companies. As Hong (2011) shows, only companies who contribute on creation and use of knowledge, can benefit from the benefits of business reification on knowledge-based economy. Thus, Knowledge Management has turned into one of the most important systematic functions of advanced telecommunication organization and helps to the improvement of their efficiency and effectiveness in order of staying viable on today's competitive environment. Thus, Knowledge Management has turned into a competitive weapon for moving forward and drawing more successes on uncertain future of telecommunication industry. Despite that telecommunication industries play an important role on knowledge-based management of countries, yet it seems that the extent of Knowledge Management studies on telecommunication industry is very low. In addition, very few articles have attempted to address the primary factors of success on implementation of Knowledge Management. Since correct implementation of Knowledge Management projects usually requires lots of budget and telecommunication organizations are at the beginning of implementing Knowledge Management path, evaluating implementation level of each one of success factors of Knowledge Management on organizations has an importance in such a way that some of these factors can be prioritized and implement appropriately on industry. With respect to lack of studies and relative importance of this industry in economy and competitive advantage that Knowledge Management offers, study and review about the role of Knowledge Management on telecommunication and communication organizations seems to be necessary.

**Data Analysis**

On this section review of study diagram and the results of path analysis have been attended.

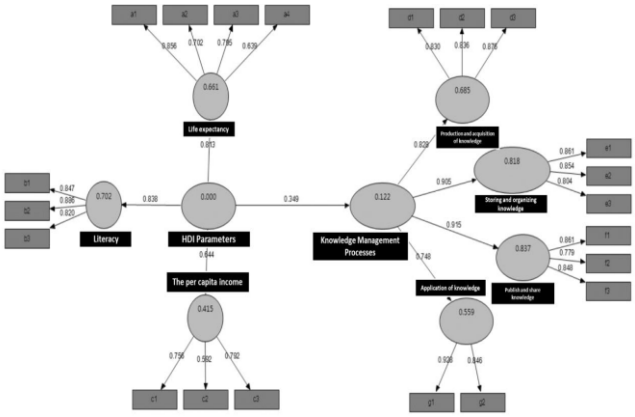


**Figure 1: Confirmatory Factor Analysis Model and Structural Equations on Standard Estimation of the Multipliers State**

Figure 1 shows Confirmatory factor analysis model and structural equations on Standard estimation of the multipliers state. HD parameters (independent) and Knowledge Management process variable (dependent). On this graph, numbers or multipliers divide into 3 groups. First group are titled as first order measuring equations where equations are between their hidden variables and indexes (questionnaire items). Second group are the equations between variables and their dimensions (second order factor loads) and third group are the equations between main variables (path multipliers). Standard factor loads based on quotes of Fornell and Lacker (1981) should be above 0.5 and ideally 0.7 or higher.

## Index Validity Review

In order to analyze questionnaire structures and findings compositional factors of each structure and factor loads have been used. Results of factor loads of study variables have been shown in table 1. All the factor loads got more than 0.5 values. Also, in addition to the fact that all factor loads have been more than 0.5, their T-amounts are also more than 2.58 and have meaning on less than 0.01 Error levels, therefore questionnaire questions Attunement for measuring concepts can be shown on this valid stage. In fact, above results show that the subjects that researcher has intended to evaluate them with questionnaire questions have been fulfilled by this researcher and relations between structures or hidden variables are Citable (Hooman, 2012). Index with higher factor load has more importance in comparison to other indexes.

***Table 1: Results of First and Second Order Factor Loads***

| Factor Analysis Times | Items | Sigma level | T-Student Test | Factor loadings | Results |
|---|---|---|---|---|---|
| First Second | a1 <- Life expectancy | <0.01 | 40.861 | 0.856 | Allowed |
| | a2 <- Life expectancy | <0.01 | 14.614 | 0.702 | Allowed |
| | a3 <- Life expectancy | <0.01 | 30.374 | 0.795 | Allowed |
| | a4 <- Life expectancy | <0.01 | 9.773 | 0.639 | Allowed |
| | b1 <- Literacy | <0.01 | 38.982 | 0.847 | Allowed |
| | b2 <- Literacy | <0.01 | 64.293 | 0.886 | Allowed |
| | b3 <- Literacy | <0.01 | 30.154 | 0.820 | Allowed |
| | c1 < - The per capita income | <0.01 | 15.436 | 0.757 | Allowed |
| | c2 < - The per capita income | <0.01 | 6.348 | 0.592 | Allowed |
| | c3 < - The per capita income | <0.01 | 21.054 | 0.792 | Allowed |
| | d1 < - Production and acquisition of knowledge | <0.01 | 35.128 | 0.830 | Allowed |
| | d2 < - Production and acquisition of knowledge | <0.01 | 35.697 | 0.836 | Allowed |
| | d3 < - Production and acquisition of knowledge | <0.01 | 65.561 | 0.876 | Allowed |
| | e1 < - Storing and organizing knowledge | <0.01 | 47.788 | 0.861 | Allowed |
| | e2 < - Storing and organizing knowledge | <0.01 | 41.666 | 0.854 | Allowed |
| | e3 < - Storing and organizing knowledge | <0.01 | 19.762 | 0.804 | Allowed |
| | f1 < - Publish and share knowledge | <0.01 | 55.829 | 0.861 | Allowed |
| | f2 < - Publish and share knowledge | <0.01 | 23.277 | 0.779 | Allowed |
| | f3 < - Publish and share knowledge | <0.01 | 60.550 | 0.848 | Allowed |
| | g1 < - Application of knowledge | <0.01 | 109.325 | 0.928 | Allowed |
| | g2 < - Application of knowledge | <0.01 | 26.444 | 0.846 | Allowed |
| | Parameters of HD <- Life expectancy | <0.01 | 23.070 | 0.813 | Allowed |
| | Parameters of HD <- The per capita income | <0.01 | 13.065 | 0.644 | Allowed |
| | Parameters of HD <- Literacy | <0.01 | 31.293 | 0.838 | Allowed |
| | Knowledge processes - <Publish and share knowledge | <0.01 | 116.193 | 0.915 | Allowed |
| | Knowledge processes - <Application of knowledge | <0.01 | 26.374 | 0.748 | Allowed |
| | Knowledge processes - <Production and acquisition of knowledge | <0.01 | 20.430 | 0.828 | Allowed |
| | Knowledge processes - <Storing and organizing knowledge | <0.01 | 72.933 | 0.905 | Allowed |

Convergent validity, combination reliability, and index of fit goodness

***Table 2: Indicators of reliability, validity and model fit***

| Hidden variables | GOF | $\sqrt{R^2}$ | $\sqrt{AVE}$ | Cronbach Alpha | $R^2$ | CR | AVE |
|---|---|---|---|---|---|---|---|
| Life expectancy | 0.642 | 0.775 | 0.829 | 0.743 | 0.661 | 0.838 | 0.566 |
| Literacy | | | | 0.81 | 0.702 | 0.888 | 0.725 |
| The per capita income | | | | 0.541 | 0.415 | 0.76 | 0.517 |
| Production and acquisition of knowledge | | | | 0.804 | 0.685 | 0.884 | 0.718 |
| Storing and organizing knowledge | | | | 0.791 | 0.818 | 0.878 | 0.705 |
| Publish and share knowledge | | | | 0.775 | 0.837 | 0.869 | 0.689 |
| Application of knowledge | | | | 0.739 | 0.559 | 0.882 | 0.789 |
| HD Parameters | | | | 0.794 | 0 | 0.845 | 0.667 |
| Knowledge Management Process | | | | 0.908 | 0.122 | 0.924 | 0.811 |

To measure convergent validity, 3 units have been considered which are: Factor Loads, Average Variance Extracted and Compositional Reliability or structure reliability. Average Variance Extracted, is use of a scale of convergence among a collection of observed items on one structure. In fact, a percent of explained variance is among items. This Average Variance Extracted should be above 0.5 so that one of convergence reliability criteria gets confirmed. Compositional reliability should be also based on Fornell and Lacker (1981) 0.7 or higher which indicates the adequacy of internal convergence. The table 2 shows the Indicators of convergence reliability, validity and model fit. Convergence Reliability means that indicators or each structure finally provide a good separation in terms of relative measurement to other structures of model. In more simple words each indicator only measures its own structure and its composition should be in such a way that all structures get separated well from each other. With the help of Average Variance Extracted Index it was clear that all under study structures have an Average Variance Extracted more than

0.5. Compositional Reliability and Cronbach's Alpha Indexes were used for reviewing questionnaire reliability. All these multipliers are above 0.7 which shows the reliability of measuring device.

## Discriminant Validity

***Table 3: Correlation Multipliers and Discriminant Validity Index***

| Hidden variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | $\sqrt{AVE}$ |
|---|---|---|---|---|---|---|---|---|
| Life expectancy | 1 | | | | | | | 0.752 |
| Literacy | 0.465 | 1 | | | | | | 0.851 |
| The per capita income | 0.346 | 0.373 | 1 | | | | | 0.719 |
| Production and acquisition of knowledge | 0.124 | 0.307 | 0.142 | 1 | | | | 0.847 |
| Storing and organizing knowledge | 0.126 | 0.334 | 0.203 | 0.656 | 1 | | | 0.84 |
| Publish and share knowledge | 0.053 | 0.396 | 0.117 | 0.64 | 0.811 | 1 | | 0.83 |
| Application of knowledge | 0.256 | 0.487 | 0.195 | 0.495 | 0.555 | 0.631 | 1 | 0.888 |

One kind of hidden variables on structural equations model is based on correlation (Association). Correlation is a relation between two models but No directional and nature of this relation is evaluated by Correlational Analysis. The table 3 shows the correlation multipliers of Pierson for review of a relation between hidden variables two by two. On main diagonal of matrix, number 1 is located saying that each variable has full correlation with itself. All of multipliers have meaning on 99% Assurance level (meaningless level is lower than 1%). As much as correlation coefficient is higher, relation intensity between two variables is higher and stronger. The table 3 in addition to review of correlation coefficients, attends to Discriminant Validity. Last column of this table shows the second root of Average Variance Extracted. Requisite of confirming Discriminant Validity is higher value of second root of Average Variance Extracted from all correlation coefficients of related variable in comparison to other variables. As an example, second root of Average Variance Extracted for Life expectancy variable is (75.2) which is higher than value of correlation of this variable with other variables.

As it is evident from table 3, value of second root of Average Variance Extracted index for all variables is higher than its correlation with other variables.

## Study questions

How is the condition of human development indexes on telecom industry?

***Table 4: One sample T-test result***

| Variables of the research | Confidence interval | | Sigma level | T-test | standard deviation | Mean | Results |
|---|---|---|---|---|---|---|---|
| | Upper bound | Lower bound | | | | | |
| **Life expectancy** | **-0.386** | **-0.704** | **0** | **-6.823** | **0.799** | **2.455** | **Undesirable** |
| **Literacy** | **-0.294** | **-0.666** | **0** | **-5.122** | **0.937** | **2.520** | **Undesirable** |
| **The per capita income** | **0.709** | **0.437** | **0** | **8.369** | **0.685** | **3.573** | **Undesirable** |

For this part of study, one sample *T*-test will be used. This test is used for determining difference in meaning determination between one variable averages with one constant value which is called the test value. Most important point on using one sample *T*-test is the choice of test value which should express a middle point. On the present study with respect to the designed 5 options licker spectrum on questionnaire, minimum and maximum of point's average of each dimension are 5 and 1. If the value of an item gets at least 50% of whole of available score, that will be considered as a desirable item. Thus, numerical value of 3 has been considered as a limit that higher scores are desirable state. If average of answers on each one of variables items are more than 3, variable is at a desirable state from respondents' viewpoint, otherwise from under study population, evaluated variable will not be on a desirable state.

Assumption(s) of Discriminant validity of this study is as follows:

$H_0$: Averages of replies do not have a meaningful variation with theoretical average.

$H_1$: Averages of replies have a meaningful relation with theoretic average.

With respect to average value of responds and Inferential indicators of *T*-test it can be said that people evaluation from Life expectancy and education variables were undesirable because average value of responds were lower than 3 and obtained *T*-value was smaller than 1.96. Thus, it can be said that the status of these two indicators were undesirable. But for yearly income with respect to higher average of responds from 3 value and higher value of *T*-value, it can be said that evaluation of people was desirable.

The status of implementation and use of Knowledge Management on telecom industry.

$H_0$: Respond's averages do not have a meaningful variation with theoretical average.

$H_1$: Averages of replies having a meaningful relation with theoretic average.

With respect to respond's average value and Inferential indicators it can be said that people evaluation from use of knowledge variable was undesirable because average value of replies was lower than 3 and obtained *T*-value was lower than 1.96. Thus, it can be said that implementation and use of Knowledge Management on telecom industry status was not desirable. But for storage and organize of knowledge with respect to higher replies of average values from 3 and higher value of *T*-item from 1.96 it can be said that people evaluation was desirable. On two sections of production and acquiring knowledge and emission and share of knowledge, use and implementation of Knowledge Management on telecom industry was on medium state (meaningful level value was more than 0.05).

## CONCLUSION

With respect to the condition of human development indexes, obtained results from structural equations show that with respect to the fact that *T*-amount is out of critical value, Life expectancy status on telecom industry has been evaluated undesirable which indicates of giving importance to this matter and necessity of paying attention to this variable on industry, also regarding education, condition was undesirable. This matter shows that respondents demand ever increasing amount of training and development programs in order of increasing staff knowledge about yearly income, but results are different with last two variables. Income amount on telecom industry has a good status in comparison with oil industry, steel, banking, cement, petrochemical industries. Employees on this section with respect to high level of technologies and technologies being updated and high incomes of active companies on this area benefit from relatively high income, salaries and wages. Also, development and expansion measures on this industry are high, in which this matter itself will result in increase of occupation and reduction of poverty, also on implementation and use of Knowledge Management on telecom industry, there are 4 variables on this section, first variable is production and attainment of knowledge. Condition of this variable has been evaluated as medium by respondents. Knowledge which exist on telecom industry including network knowledge or hardware section (network that by using it, services are offered to clients) and information technology knowledge (software knowledge). Because most of the network equipment and hardware section are imported, on this section production and attainment of knowledge is low. But on software or information technology section, considering human sources involvement and existing learnings on this section, condition is better, and creation of knowledge and attainment of knowledge will be done better therefore obtained result is better, about storage and organizing knowledge variable, condition is better. Respondents have detected this index status desirable. This case is related to existing mechanisms for documenting and integrating knowledge resources. Also, existence of strong information technology and knowledge storages on telecom industry is another proof of this matter. This matter with respect to that of information storage resources on country and various software for storage of knowledge are created and active organizations on telecom industry are pioneer on this matter, is consistent. About dispersion and share of knowledge, status is evaluated as average. This matter because of lack of dispersion among active companies on this industry has occurred. On dispersion of knowledge section especially on technical part, information and education get better. Also, in information technology section with respect to existing substructures there is a good status for dispersion and share of knowledge. But one of the most important factors on dispersion and share of knowledge are processes related to the share of knowledge on organization. Also, in relation to using knowledge from respondent's opinion, condition is undesirable. Respondents have evaluated implementation of information and knowledge on this industry weekly, improvement of processes related to the use of existing knowledge and experiences of people on this industry is considered weekly. Created knowledge although on information technology has been evaluated averagely, but in respondent's opinion this knowledge wasn't properly used.

### Practical suggestions

To continue about each one of the considered variables with respect to the respondents' opinion, some suggestions have been made. They are as follows:

1. Status of Life expectancy index on telecom industry has been identified as undesirable. In order of improving this index on telecom industry, it is suggested to create mechanisms for increasing sense of trust among employees and functionality of these mechanisms gets evaluated. Some parts of these mechanisms include measures that are made for compensation of employees' services. Long term loans offered to employees for purchase of houses, offering facilities to employees for them and their families to go on trips and … are among these measures.
2. Education condition was also undesirable from respondents' opinion. For improving this variable on active companies on this area it is suggested to

hold a documented program for education of personnel. For this purpose, on first step a documented Needs Assessment from education needs should be made on organization. After review of educational needs, educational classes proportional with them should be held inside or outside company, also financial support of companies and spiritual support about complementary education of employees on higher stages will be very useful and will result in increase of education level of staff.

3. Yearly income condition on telecom industry was detected as desirable. Therefore, obtained results from questions are consistent with facts of this industry. Also measures of active companies on telecom industry with respect to their mission which is increase and feasibility of connection between people of society are in direction of poverty reduction and increase of Occupation and enhance of business. Studies and findings show that as much as telecom industry growth is higher, Gross National Product increment will be more. Also new businesses which we have witnessed on recent years such as internet stores, start apps, new applications and …. is an evidence of this matter?
4. Suggestions about production and attaining knowledge are indicators of this matter that in telecom industry on specialized domains, there are two major knowledge- Hardware and Software Knowledge. On hardware section since mostly the technology gets into the country and other countries being pioneered on technologies of this section, there is not much chance for production of knowledge. But on creation of network and technical skills division, high potentials do exist. For example, on this area companies, although equipment is imported, and most of the equipment gets in from outside of country, but getting equipment together and creating network needs a certain knowledge. On this section use of foreign consultants and use of knowledge has a great importance with this matter is improving currently on country. Also, maintenance knowledge of network is among other knowledge that active companies on this area can enter in them. On software with respect to measures which have been done on telecom industry in recent years, some appropriate measures can be done on production and attainment of knowledge area. Since then the active division of network needed for various software is sensed and hardware division of network gets operational by various software and since a noticeable part of these software are producible inside of country, therefore this area can be a good place for production and attainment of knowledge.
5. About storage and organizing knowledge, condition was detected in a desirable state. In order to improve information resources, conditions and storage of knowledge measures such as ease of learning on organization can be pointed. Also, increase of information resources on company for record of knowledge such as SharePoint software is among other measures that can have improvement on information storage.
6. Emission and share of knowledge on telecom industry was evaluated as average. In telecom industry with respect to maturity of organizations, spread of knowledge will occur nicely but it seems that this matter has some room for improvement. Creating structures of information dispersion on organization will result on more improvement of information on organization. In this section of creation of document center or library to people attendance has a great importance. Currently on telecom industry there is no reference and specialized library in which all companies would record their information in it. Also having various publications and share of knowledge on these publications can have a positive effect on knowledge emission. Use of experts on this industry and training of staff by experts can be effective on share of knowledge.
7. About use of knowledge, condition of this variable on industry was detected as undesirable. For the improvement of the condition of using knowledge, by holding Consultation meetings and use of knowledge of industry experts it can be tried to solve the new and upcoming problems. Solution of this matter is the creation of consultation group from a group of experts and expert staff on this industry. Also use of foreign consulters is another measure which is suggested on this regard.

**Suggestion for future studies**

1. It is suggested with respect to the pluralism and abundance of effective parameters on Knowledge Management, other dimensions related to Knowledge Management will be considered.
2. Review of effective parameters on HDI index.

3. Review of methods of increment of technology acceptance and creating desire for using electronic services among clients.

4. Doing this title of project on statistical populations especially other industries such as oil industry, gas, petrochemical

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