

Codification of the competence model for Senior Information managers in Iran (Field Research on Iranian managers)

Samira Mohamadi¹ and Nasim Ghanbar Tehrani² and Mohammad Ali Sobhanallahi³

¹MSc Student, industrial Engineering, Department of Industrial Engineering, university of Kharazmi, Tehran

²Assistant professor, Department of Industrial Engineering, university of Kharazmi, Ph.d in Industry

³Associate Professor, Department of Industrial Engineering, university of Kharazmi, Ph.d in Industry

Received: May 14, 2015

Accepted: August 27, 2015

ABSTRACT

The main objective of this research is the codification of the competence pattern and model for senior information managers in Iran. Statistics population of this research includes ; senior information managers in administrations ,organizations and companies including both governmental and non- governmental in Iran. The number of senior information managers required as sample ,was measured by Kokeran ,as 96 person, and this has been implemented by random sampling. Information collecting tool in this research has been electronic questionnaire , which was submitted to more than 500 senior information managers and 82 replies were received within a period of three months . Information Analysis were implemented using factor analysis and finally , six factors which codify senior information managers' competence ,were recognized. These six factors are : recognition of commercial opportunities , knowledge management , comprehensive outlook, interpersonal skills, relations management , development management.

KEYWORDS : Competence, Managers' competence, Senior Information managers' competence, Competence model.

1. INTRODUCTION

Today, it could be clearly understood that Iran's information technology management environment has been influenced by permanent developments in technology and competitive atmosphere. The pressure it imposes on organizations, has caused that this issue has becomes more important in competitive competence environment and especially the managers' competence. Therefore, organizations demand to have senior managers who can have more effects on products and services.

Lavlr paper(1994), cleared the importance and necessity of the competences more than ever. He studied the evolution in organizations, from organizations based on occupational analysis to competence –based organizations. As a result of this study, most organizations applied the management method based on competences. On the other hand, information system senior management skills and activities have been unusually developed since half a century ago, these managers ranged from Technitian who managed and had functional responsibility which had little importance for the organization ; to senior information manager who is now responsible for a section which overall success of the organization depends on.

This research especially deals with the the assessment of the required competences for senior information managers in Iran. the issue that at the moment these managers are selected according to what competences and what are the competences which should be considered in selection, appointment and /or assessment of the managers?

1.1. Expressing the issue

Azmoudeh, (2013) [1] saw Mobile phone technology , Information Technology subscribers Services, cloud processing and variable expectations , impact on whatever organizations want from Information Technology and information technology leaders. Moreover, downturn has added to the existing challenges [2] .

Mokhtari, (2014) [1] saw The results of a new study has shown that around three quarters of information technology experts or in more exact words 72% of them feel the their role at their work place ,is not considered. According to (tech world) website, however most organizations could not correctly communicate between information technology and their business environment [2].

According to Barbara Cooper's ,the position of senior information managers is swining. The first group of senior information manager are going to be retired. The remaining,have most taken wider responsibilities or have entered other fields of technology. In fact, in census done in 2008 ,56% of these managers have said that log-term targeted planning which is of executive managers' skills ,is of great importance in their job . 47% believe the cooperation and its more

* **Corresponding Author:** Samira Mohamadi, MSc Student, industrial Engineering, Department of Industrial Engineering, university of Kharazmi, Tehran, E-mail (s.mohamadi84@yahoo.com).

impact, and 39% think that is more essential to have experts who could establish information technology. Thus, senior information managers do not know who will follow their responsibility in the organization.

Up here, can be daresaid that senior information managers, are considered most valuable resources to the organization who realize organizational objectives through their efforts and coordination and cooperation with other parts of the organization. It can be said that important issue finds its meaning in meritocracy system.

Toumaj, (2012) [1] saw The meritocracy in brief is defined; competence, frequent forces recruitment and then providing the bases to apply management based on competences of people [2].

According to Cohen, organizations are engaged in studying this issue that how can they preserve competent ones.

Minter also believes that if managers competent and skillful, experienced and completely informed of management principles and techniques hold the top position in the organizations, the achievement of the organizations to their objectives will be guaranteed.

The recognition of the collection of managers' competences is of great importance, as the competence is the collection of knowledge, skills and capabilities in an especial occupation and causes person's achievement in their authorities, and finally will lead to the effectiveness of the organization.

The effectiveness of the managers will improve through the development of the codification and the framework of management competences. Therefore, in final selection of the managers criterions such as; the amount of self-confidence, self-analysis, spirit of serving people and professional reputation should be considered, and finally through employing promising people, frequently the need to supervisor and controller levers can be reduced.

1.2. The necessity of research implementation

In the present era, the importance of position and the role managers and senior managers as the designer, leader and administrator in the organization, is clear to every one in a way that it will follow the effective systems in attraction, appointment, preservation, performance assessment and their frequent improvement. Benefits and advantages that exist in acceptance and development of competence-oriented approach and its application in staff development plans, has made this approach especially considered.

On the other hand, the intense increase in application of Information Technology inside the organization, has also increased extensive development of the role of Senior manager of information and technology.

Despite this issue, most firms do not see the information technology as the main motivating and strategic factor in business; as a result they will not realize the role of senior information manager as an important issue. This means that there is a limited understanding of the senior information manager's role and also its potential importance in business. In other words, there is little knowledge regarding the role of senior information manager and its potential importance; because the information technology has not been understood as a subject (so it deserves). Most managers are not dominant on information technology.

Professor (Roman Beck), the university professor, regarding this issue says; "the information technology has been seen as a tool to reduce the costs, but in reality the information technology opens the way to an innovative potential which is the determiner of the company's future competition."

In an assessment implemented on 1559 managers in IT (Information Technology) field regarding the importance of strategic information technology in their firms, it was determined that in total 79% of executive managers, assessed the strategic importance of information technology great high for the success of their firm. This amount in England includes 87% and in Germany 77% or less than three quarters of participants. These managers expect that the importance of Information Technology becomes more in the future; so around 84% of the managers assessed, have said that they expect that the strategic relationship of information technology increases within future five years. The importance of the future of Information Technology in research and development, provisions and customer services has been evaluated as great. In total, 70% of the managers believe that information technology will play an important role in the future of research and development and 70% believe that it will play a very important role in provisions and customer services in huge firms. Senior Information managers believe that the highest impact that information technology has on their firm so that the competitive power of the company will be reserved, will be through increase the operation (72%), saving costs (70%) and also knowledge management.

In countries like Spain and France, innovative potential of information technology and the considerable impact of this domain on the competitive market, has been considered. On the contrary, German managers believe that the highest impact of information technology on their company is in flexibility, efficient procedural design and customer services.

Senior information managers, have also listed several other issues as key procedures in interdisciplinary information & technologies which in general have usage in this industry. In general procedures are included the security of information technology (which 54% have pointed it), business intelligence (31%), green information technology (29%) and the arrangement of information technology strategy (15%).

The research results show that many senior information manager believe that ; there is difference between their performance in this role and the method of their assessment by their bosses. Most senior information technology managers have acknowledged that their demands has been on supporting strategy, business orientation skill , recognition of intruder technologies and anticipation of new opportunities provided through the information technology. In spite of this, their bosses keep and and evaluate their performance according to the project they provide .

Considering the importance and necessity of the subject and the wide application of managers and senior managers in the achievement of organizational objective and strategies , also considering the essentiality of correct criterion for the application in information technology management sub-systems, the subject of recognition and codification of competence model for senior information managers was selected as the research subject.

1.3. Research history

1.3.1. Theoretical history

Charles Woodrov has done several researches on managers' competence. He concluded of his researches that the competence applies on the effectiveness of the job.

Since 1970, introducing approaches based on competence in organization's environment , has been initiated, and then on ,it has had developed quickly. David Mc. Colland had proved in 1973 that individual and behavioral features has more impacts on job performance rather than talent test determining who has been successful in job performance.

Bouyatsiz was another pioneer researcher who had focused on the importance of managers' competence. He defines the word "competence" similar to Clamp's definition.

Considering Bpouyatsiz and clamp definitions ,the competence is the principal feature of an individual, the result of great performance in a job. Bouyatsiz wrote that the efficient performance model exists when the organizational environment factors , job demands ,individual competences become balanced.

Gholamzadeh, (2007) [1] saw David Maccolland (1973) , in a paper " test of competence instead of intelligence "became the pioneer to a movement later called "competence movement". In his studies variables , he identified variables which instead of intelligence test and other ones , forecasted job performance or success in life. Mac. Colland called these variables " Competence. According to Macolland definition and competence , the feature and principle characteristic is the cause of brilliant performance [2].

1.3.2. Empirical Background

Razzaghi (2007) implemented a research as " Norming the manager's ompetence scale " with the objective to measure competence criterions for managers and their leadership power , the imporovement in managers' selection and appointment methods , helping the improvement in directing organizations and finally an appropriate tool to measure the criterions and diferrent levels of managers' competence. In the mentioned research , 18 factors have been considered as the managers' competence criterion. 18 factors are:

The recognition and cultural sensitivity , economic management ,effective control, help others to improve , cooperation and teamwork , emphasis on efficiency,resources allocation , considering customer needs , risk taking , time management, organizational awareness, the capability of solving problem, executive maturity, crisis management, control and supervision capability, reativity and innovation, self- confidence , consultancy and guidance.

In Iran , researches like (determining sports managers' competences model), (the competences of Ministry of Energy managers), (Determining the model of Islamic – Iranian capabilities of the Governmental sector managers), (the codification of procedural model for the competence of human resources managers of Governmental sector emphasizing on general policies of administrative system) and ... have been implemented and in companies, management competences model of Social Security Organization, Capabilities model for managers of Ministry of Energy, Competences model for Mapna company's managers and competences model for Industrial Development and Renovation Organization of Iran and ... can be mentioned.

Among foreign studies ,Mc colland study can be mentioned; among the most important organizational researches done in this regard (M.C.I), English charter and model (Workforce) for Australian Ministries Can be mentioned. Kocheran (2009) also implemented a research "competence development assessment in Ohio state University: Development of a competence model for development of organization in 21 century . 14 cases of lever competences which he identified are : communications, frequent learning, providing services to the customers, diversity , flexibility and change , interpersonal relations development knowledge , specialization , Resources management , Leadership and teamwork , Application of Technolgy and Compatibility with it , thought and solving the issue , understading others and soities and self- governance.

Edwards (2009) have stated that management competences as staff training and increase , communications, solving problem , change management , technical skills and responsibility, forming group, performance management (Authority), interpersonal awareness, integration of views.

Research team of Burgalt , Cherry, Meltis and Roy lard (2006), identified 14 types of competences for managers. To their opinion, political consciousness, tactical and strategic skills, providence and innovation , complexity management , compatibility and frequent learning, leadership, emotional intelligence , Human resources management, knowledge management ,using moral values, communications and Negotiation , technical skills , the acceptance of performance management governance, are of managers' competences.

United nations has also provided the list of competences regarding managers. In the mentioned list , 14 competences has been stated. The competences, eight lever capability meaning communication abilities, Team- work, organization and planning , accountability and responsibility , creativity, customer- orientation, commitment for frequent learning , technical knowledges and include six supplementary capabilities meaning; leadership, outlook, others' empowerment , creating trust , performance management, judgement and decision –making .

1.4. Who is the senior information manager ?

It can be said that we know this executive position in set of managers of an organization or company under the title of (Information Technology Manager). Senior information manager is one who applies the best, the most economical and the most appropriate and recognized tools and strategies for information management in an organization and these tools and solutions are not out of information technology domain.

In various papers and books in the field of information technology ,the features in brief hae beendivided into two categories (skills)and (responsibilities).

The skills which any manager shoud have. These skills have been divided into two categories General (Management Skills)and especial (the skills related to Information Technology). Therefore, the skills of managers of the information technology sector can be included of :

1. Leadership
2. Understanding Business feature
3. Relationships
4. The capability to create and change management
5. International affairs experience
6. Balancing between strategy and solution
7. Having courage tttoop prevent visual and performance errors of high rank managers in the field of information and technology
8. Balancing between the research and development , and the application
9. Establishment of correct relation with information technology consultants
10. Recognition of strategic turnpoints
11. Knowledge of how correct intervention in the procedure of internal projects and outsourced one
12. Familiarity with laws in information technology
13. Performance management skills

The responsibilities which is expected that senior information managers to do in the future :

1. Entrepreneurship
2. Connector
3. Monitoring and searching international talents
4. Providence
5. Fluency in business measurement criterions
6. Innovation
7. Economy: unpredictable factor

1.5. Research Hypothesis

1.5.1. Theorithical research framework

Considering several definitions of competence and the assessment of various modles of competence according to this research, competences framework can be explained in a way that the concept of senior information managers' competences to be structuralized in form of these dimensions: among the capabilities and skills that a senior information manager should have in order to do their responsibilities betterand the knowledge that a manager benefits in order to do their tasks , and In the end , the individual features that a manager shoud have so that to play his role better in order to achieve the organizational objectives.

Competence framework identifies distinct and specific behaviors in order to distinguish the high performance and it also provides the general outline of general and specific competences. Distinctive behaviors can be assessed in two methods:

- Competences considered important regardless of the environment ,it means that they should be used in all situations at highest level.
- Competences which should be applied in an especial environment, and they have separate interpretation considering the type of environment.

In organizational context and information technology distinctive behaviors of senior information manager are categorized into four main sections: Management thinking of senior information technology manager, effectiveness, achievement to the objective and self –management that these cases along with other key competences that the researcher has identified through field researches in numerous researches and similar ones and has been explained in below framework. According to the mentioned issues and theoretical basis of this research the preliminary list of competences and theoretical model can be shown as table 1.

Table 1. Preliminary list of competences and their dimensions

Competence Dimensions	Components
Strategic outlook	Identification of the alternatives and opportunities – Business orientation advocate to new technologies /innovative – orientation of knowledge management ,and intellectual capitals ,comprehensive outlook of the codification of information and communications technology strategy , the construction of organizational Information Technology and organizational architecture
Communications & Cooperations	Influence on key stakeholders – inter personal skills
Leadership	Leadership team growth and development – effective leadership –leading the team forward in using information technology – establishment of effective communications with the board of directors , sympathy , listening , aspirations and diplomacy
High emotional intelligence	Win- Win relationship between the international and internal affairs management Establishment of network in the organization – development leadership and management – development oriented leader, impression
Operational management	Result – orientation – successful project delivery both in technical and organizational dimensions
Deliverer	Cost management and benefits –Technical knowledge (soft) and technical specialties (Hard), budgeting and control- Regulatory (a mechanism)for appropriate and precise performance- Project risk management
Resources management	Realization of the expectations – Information Technology projects management – Human resources management in Information Technology sector- Value management – Succession planning for senior information manager – Information Technology Governance
Business perception	Strategic Thought- General viewpoint
Viewpoint, Visionary	General business view – Long-term Perspective – Domestic business knowledge (the aid to the codification of organization’s strategy) - strategic -alignment of information technology emphasis on customer - Correct Market understanding – foreign business knowledge –Market knowledge (Market risk management – networking with peers)- sellers and suppliers communications management , understanding competition (Correct sourcing – sagacity in the market)- industry outlook Development in;Mangement knowledge – planning capability – organizational impacts assessment
Management soft skills	Thinking Influence Acheivement to the objective Self- management

In this research, it is intended that the impact rate of any independent variable on dependant variable ,to be measured and finally the fitness of model is assessed through the test of goodness of fit. Therefore, Questinnnaire’s items , which have been shown in this table as the component ,are apparent variables and the fators which will be identified, are also expressed as hidden factors (didden or structures).

2. MATERIALS AND METHODS

2.1. Research Methodology

Present research is descriptive and functional which has been occurred in Iran, in organizations and administrations , Governmental and Non- Governmental firms and..., with in the period of Sept 2014 to Feb 2015 . regarding the subject ,those projects are in the field of Organizations Managers’ Competences. The statistics population of this research includes; Senior managers and Senior executive experts of information technology management of the organziations and firms in both sectors (Private, Governmental). The method of information gathering is questionnaire(Electronic). In order to evaluate the credibility of the questionnaire, Kronbakh Alpha was used and its amount was measured 84%. Finally, after reliability and stability confirmation of measurement tool, and deleting questions with similar concepts , electronic questionnaire based on 36 questions was provided and was electronically submitted to more than 500 senior information managers , and the replies were received during a period of three months , 82 answers were received in February. Sample volume was estimated 96 person through (Cochran) formula. Sampling has been randomly done. Analysis method ,is the factorial confirmatory one. In the factorial confirmatory analysis , the main hypothesis of the researcher is that each factor has relationship with a series of indices. The least condition in this type of analysis, is that the researcher presupposes the number of model factors. Finally , after the model was determined, several indices are used for the measurement of modle fitness , but usually three to five indies are sufficient for model confirmation. The sum of these tests reply the question that how considered model , are good and fit to the research data. Finally, key factors will be extracted and interpreted.

3. RESULTS

In the first step the answers of senior information managers , are summarized in the following figures . the figure 1 shows the sexuality of senior information managers who replied the questionnaire.

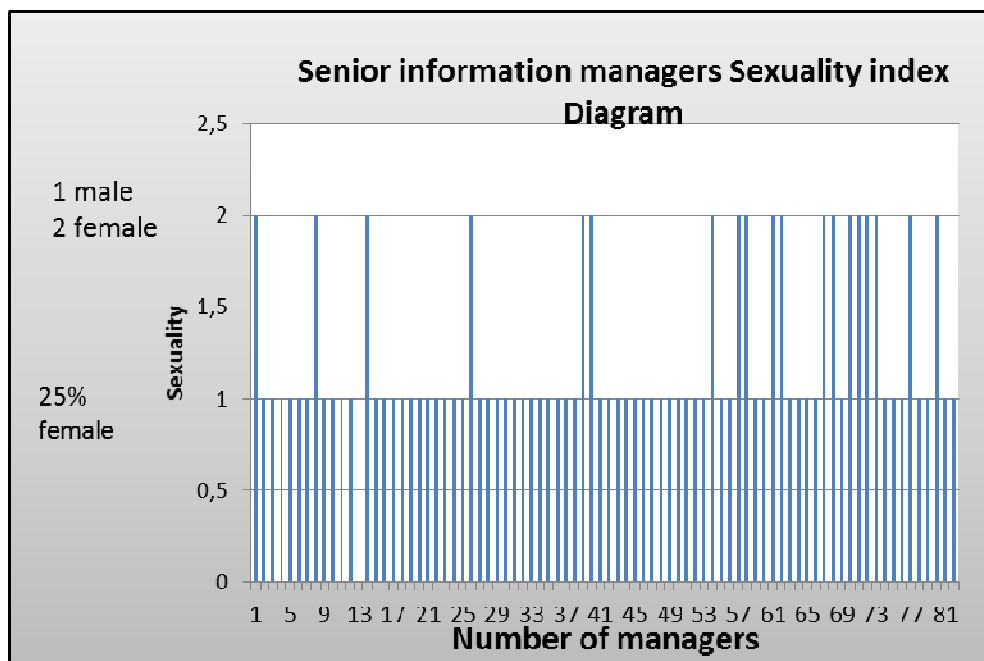


Fig.1. Senior Information Managers sexuality index Diagram

The senior information managers’ age parameter, has been shown in figure 2.

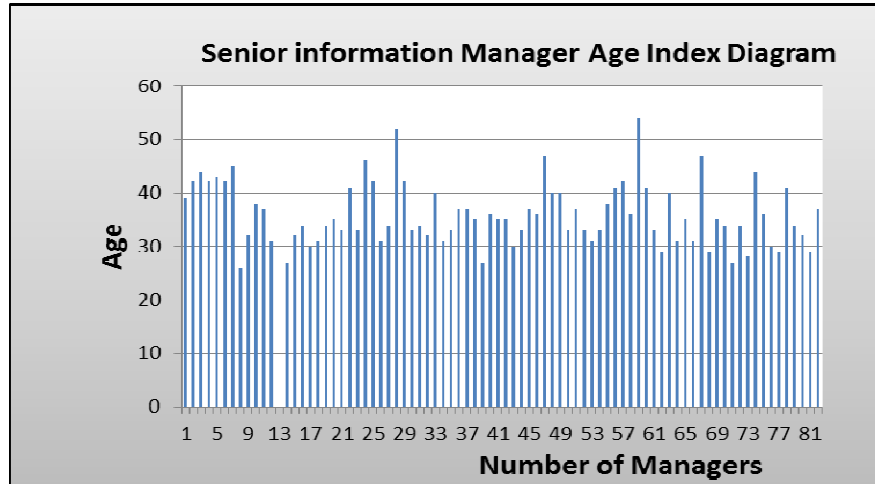


Fig.2. Senior information manager age index Diagram

The degree parameter of Senior Information Managers, has been shown in Figure 3.

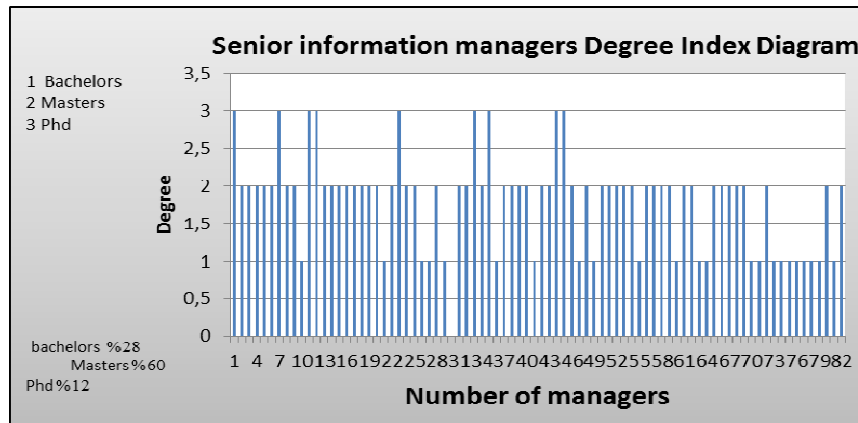


Fig.3. Senior information manager Degree index Diagram

The work experience parameter for these managers has been shown in Figure 4.

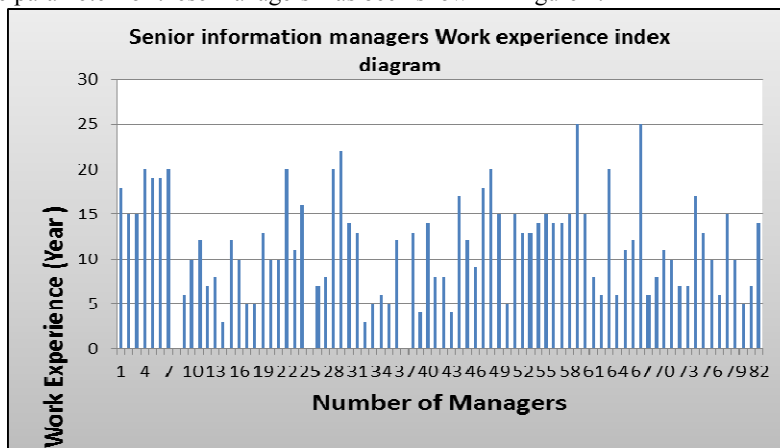


Fig.4. Senior information manager Work Experience index Diagram

Finally the Managers' responses in total , based on Likret scale , has been stated in figure 5.

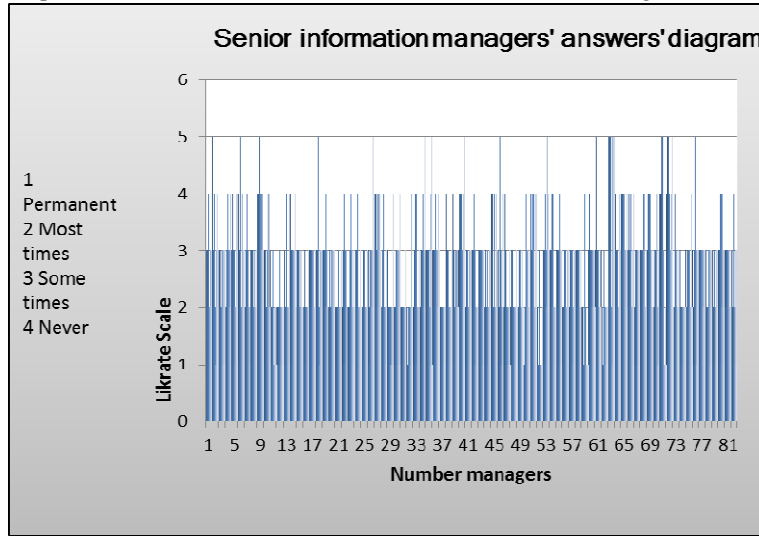
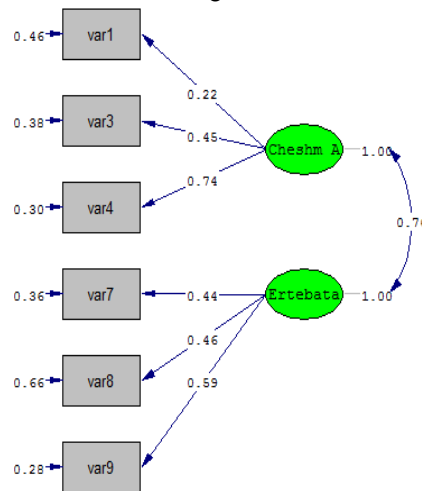


Fig.5.Senior information manager replies index Diagram

In order that the informations to be assessed using functional provionary analysis and the hypothesis to be tested ; after the definition of Apparent variables, hidden ones which were stated in the research, the analysis done on data which was determined as a result of analysis procedure that numbers of these variables, have no significant relationship. Since factorial provionary analysis requires repetitive procedures which in each repetition an implicit Matrice coovariance is constructed andit is compared with observed data ,and the comparison of these two matrices lead to the production of remaining matrice and these repition continues till the amount of remaining matrice reaches at its minimum amount possible. Therefore, the action of deleting factors which have no significant relationship,continues till these factors are minimized.

Finally, after nine times of repetitions, the minimum factors were extracted. As a result that questionnaire items or apparent variables were reduced to six factors and hidden variables were reduced to two factors,which had significant relationships with eachother. These six apparent factors and two hidden factors have been shown in figure No. 6.

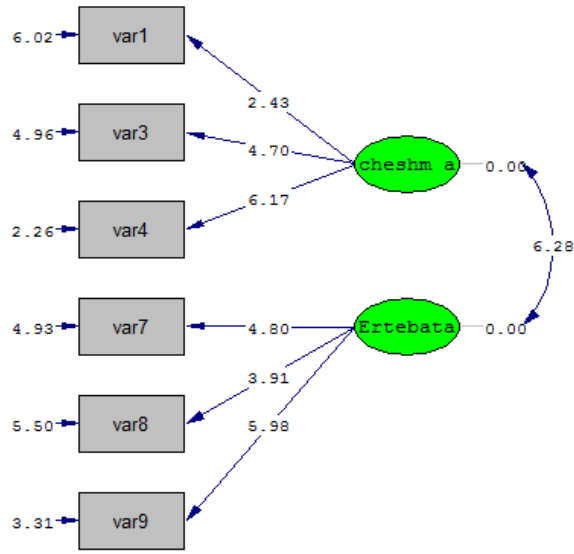
The difference between this model and the theorithical one can be observed as the table No.1 , and it was stated in the research in which the competence dimensions have been minimized to two factors and components to six factors and has been codified as key components of senior information managers.



Chi-Square=0.69, df=8, P-value=0.99954, RMSEA=0.000

Fig.6. Resulted model of analysis at the status of the impact of each factor

In this model the numbers which in fact indicator of factorial loads and the impact rate of each variable on other, can be observed. Figure No 7 shows the significance of the relationships.



Chi-Square=10.83, df=8, P-value=0.21124, RMSEA=0.067

Fig.7. The analysis model in significance of factors relationship

In the case pf (T Value), while the amounts of factorial load change, none of the factorial loads were shown in Red Colour. This means that all relationships in this model are significant. In other words, the factors impact eachother, and these impacts are all significant. Independent and dependant variables have significant realtionships with eachother. In the next step, after the determination of the test for goodness of fit model , implemented on the model so that it is determined that how much the given model is fit and appropriate to the research data. Goodness of fit test data have been stated in table 2.

Table 2. The comparison of Goodness fit test with the results of the research

Raw	Test name	Main criterion	Good ness of fit	Acceptable fit	The results of goodness fit model of this research
1	RMR	Remaianig Variance and Co variance	Whatever closer to zeo.		0.040
2	GFI	The assessment of relative variance and covariance	It should be eual or greater than 0.9.	$0.9 \leq AGFI \leq 0.95$	0.96
3	AGFI	Squares average instead of Square total in the above model	$0.9 \leq AGFI \leq 1$	$0.85 \leq AGFI \leq 0.9$	0.88
4	RMSEA	The error of total average Squares	$0 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$	0.0
5	NFI	The comparison of considered model without its relations	It should be greater than 0.9.		0.90
6	CFI	The comparison of considered model with the model without its relations	$0.9 \leq AGFI \leq 0.95$	More than 95 percent	1.00

Considering that the goodness fit test was evaluated good for model. The model can be interpreted and the final factors can be extracted and described.

4. DISCUSSION

The results is that :

Strategic outlook: which was stated as the first competence dimension in the research hypothesis that covers the questions one ,two, three.

Therefore, the significance relationship between this dependant factor to three independent ariables. Each one of these three factors as the required competences for senior information managers in Iran , were named as below:

- Identification of alternatives, opportunities and the business –orientation : identification of business opportunities
 - Knowledge management and intellectual capital : Knowledge management
 - Comprehensive outlook in business
- Communications and Cooperation: as the second dimension of competence in the research hypothesis was stated that it includes the questions No. Seven , eight and nine.
- The significance relationship between this dependant factor and independent factors as other competences ,senior information managers should have , was named as below:
- Interpersonal skills
 - The management of Foreign , international and domestic affairs : as the management international and domestic affairs
 - Development leadership and management: as the development management.

5. Conclusions

The main objective of the present research ,is the codification of a competence model for senior informations managers in Iran. As it was stated , 36 variables were considered in the research hypothesis which after analysis , finally six factors were extracted ,meaning” Identification of business opportunities“ ,” knowledge management”,” Comprehensive outlook in business”,” interpersonal skills” ,”international and domestic management” ,” Development management”. In research hypothesis were stated at two different sections ; in Especial environment and not considering the environment.It is presumed of the results of this research, that of identified competences , (identification of business opportunities , development management , international and domestic affairs management) , in especial environments and especial conditions , are appeared most and (knowledge management, business comprehensive outlook and interpersonal skills) are of competences seem important inconsiderate with the environment. Furthermore, this research’s hypothesis was that organizationa and Information Technology context is the behavior of senior information manager including : thinking, influence, objective achievement and Self- management; which there were no significant relationships observed between these factors and the results of this research. Therefore, management soft skills were not listed as key competences .

Also it was observed in the results of this research that female senior information managers comprised about one /fourth of Iranian Senior information managers. This result show that the role of women in information technology management sector have been not considered much in Iran , or in better words, the dominant presumed idea is that the role of senior information manager is the role in which men will have better performance. Hence the organizations are up to attract more male senior managers.

Also, the average age of senior information managers was 35 years , and the average work experience of the mangers was shown 12 years. Around one /fourth of the managers had Bachelors’degree, two /fourth or half of the society of senior information managers had Masters degree,and less than one /fourth had Phd degree.

In comparison with Cochran research (2009) , the common factors with the present research are ; communications, as the management of international and domestic affairs , interpersonal relationships , as the interpersonal skills, knowledge development as knowledge management.

Common factors with Edwards’ research (2009) , communications as the management of Foreign and domestic affairs, development management, interpersonal knowledge as interpersonal skills ,were extracted in this research.

Providence as Business Comprehensive outlook, Knowledge management , establishing communications and Negotiation as the management of international and domestic affairs, are common factors of this research with Burgalt research group(2006). Communications capability factors as interpersonal skills , outlook as comprehensive business outlook , are observed in present research and in the United nations competence list.

In comparison with Razzaghi research (2007) , considering cooperation and teamwork as interpersonal skills were extracted.

The point is that the difference in the results of this project than the history of the research can be stated as they can be in the different statistics population , different samples of research ,research method, data analysis method , different measurement tools and or even different cultures of the countries .

5.1. Suggestions

5.1.1. in internal sector:

This research has been implemented in the society of senior information managers , information technology sector. the results of this research can be compared to other researches if done in other management levels or even the staff of this sector.

In factor analysis , the sample volume follows the rule the more, the better, so it is suggested that the research to be repeated with more statistics sample so that other competences to be added to the research results.

Considering the results of the research in the field of statistics ,the employment of less women in the field of Senior Information management , is suggested. In this regard in different organizations and institutes of the country , it should be cuturalized and the importance of more serious women's presence should emphasized in this area (information technology).

It is suggested that other variables to be entered in the research , assessed and measured. Then , it is compared with the present research results.

5.1.2. in foreign sector:

Govenonmental- and non- governmental Organizations and Institutes in Iran and also in other countries , coluld use the results of this research towards decision- making , selection ,appointment , assessment and/ or the senior managers' promotion in information technology systems and sub-systems.

This research has been implmented in Iran with its special culture in the field of organizations' management. It is suggested that the research also to be done in different countries which have different organizational culture than Iran, having different information technology infra-structure ,and its results to b e compared with this research.

REFERENCES

1. Azmoudeh, Z., The features of Senior Information Technology Managers in Organizations, *Economy World Newspaper*, 2013, 08 Jan, No. (3107).
2. Ekrami, M. and Rajabzadeh, S., Managers' Competence Measurement Scale Component Development, Development and Management procedure (Science–Research) Magazine, 2011, Fall , No (77).
3. Toumaj, Y., Codification of the procedural model of competences for human resources management of Governmental sector ,emphasizing on General administrative policies, Ph.d Thesis , Management College, Tehran University , 2012.
4. Razzaghi, M., Soft Search of the scale of Managers' competence, MA Thesis, Management and planning Training and research institute, 2007.
5. Gholamzadeh, D. and Sehhat, S. and Sattari Laghah, B., Identification and Determination of Managers' competences Indicesin an insurance company , *Insurance World News Magazine*, No (178).
6. Ghafourian, H, Managers 'competence Pattern , *Tadbir Monthly*, 2001, No (118).
7. Mokhtari, A., Most of Information Technology Managers are neglected in the organizations, *Business management website*, 2014, 1 July.
8. Mokhtari, A., Business Need of Network Experts is increasing, *Business management website*, 2014, 1 July.
9. Nazari, M., The role of Senior Information Technology Managers, *Economy World Magazine*, 2013, 14 June, No. (2942).
10. Noei pour, B., Who is CIO? , *Network Monthly*, 2004, No.(48).
11. Yeganegi, S. A., The role of Managers' Competence in effectiveness of the managegement (Case Study , Telecommunications Center ,Qazvin), *Development and Change Magazine*, 2010 .
12. A Competency Framework for Chief Information Officers and Senior IT Leadership Positions, 2008, The British Computer Society.
13. Bourgault, J. Charih, M. Maltais, D. Rouillard, L., Hypothesese concerning the prevalence of competencies among government executives. according tb three organizational variables. *Public personnel Management*, 2006. P. 89- 119.
14. Cochran, G. R, B. S, M. S., Ohio State University Extension Competency Study: Developing a Competency Model for a 21st Century Extension Organization. Dissertation for Degree of Doctor of Philosophy in the Graduate School of The Ohio State University, 2009.
15. Chief Information Officer's activities and skills in Portuguese large companies, Copyright © 2009 by The International Business Information Management Association (IBIMA).
16. Edwards, A., Competency modeling as an antecedent for effective Leadership development and succession planning within the public social services environment, 2009. 1346. Dissertation for Degree of Doctor of Philosophy in the Benedictine University.
17. Peppard, Joe., *Unlocking the Performance of the Chief Information Officer (CIO)*, 2010, summer, California Management Review, vol. 52, no. (4)
18. Shacklett, M., 10 administrative skills every IT Manager Should have, 2014, June 6.in 10 Things.
19. The Evolution of the CIO, 2009, October, EDUCAUSE.
20. www.bcs.org
21. www.cio.co.nz
22. www.mapnp.org.com