

## The Impacts of National Factors on Employee Motivation

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**Abstract :** *The purpose of this paper is to present the finding of a study exploring factors influencing the motivation of IT (Information Technology) employees, while taking into account Herzberg's two-factor theory. The study is a descriptive-survey as far as data collection is concerned, and a questionnaire is used as a means of data collection. The population of the research consists of IT employees of companies offering IT services in Tehran. The findings indicate that factors influencing the motivation of IT employees include leadership style, job security, procedures and instructions, work setting, responsibilities and authorities, relations with coworkers, meaningfulness of work, salary and allowances, acknowledgment and recognition, sense of achievement, and finally, professional development and promotion opportunities. The findings show that there is no significant difference in the priorities of motivational factors between men and women. The study indicates that some hygiene factors in Herzberg's study have worked as motivational factors in this study. This finding can be an indication of interference of some national factors such as cultural, economic and social conditions with employee motivation across the world. This means that the definition of motivational factors and the factors marked as hygiene in developed nations may vary in other national contexts such as developing countries.*

**Keywords:** *Employee Motivation, National Factors, Herzberg's Two-factor Theory, Gender Differences, Exploratory Factor Analysis*

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### I. INTRODUCTION

Human resources play a key role in the achievement of organizational goals. Therefore, the recognition of fundamental needs of employees and their driving factors, and direct efforts to meet them are significant factors in retaining them, and enhancing their performances. The importance of the topic is evident taking into account the role of people in achieving organizational goals and complexity of human relations and variety of human needs (Wilson, 2014; Adler and Gundersen, 2007; Chanlat, Davel and Dupuis, 2013; Briscoe, Schuler and Tarlque, 2012).

According to Peter Drucker (2001), motivating knowledge-workers and innovators is the biggest managerial challenge in the 21<sup>st</sup> century. The concept of human resource management has gone far beyond staffing. Moreover, human resource management is replaced by human capital management long before; such a replacement signifies that human resources must be no longer considered as a cost but a capital.

During the last decade, it was enough to have some sort of knowledge in a given field to effectively fulfill the needs of a task, but today, success is a matter of various knowledge, potentials and intelligence. The thinkers have gone through identifying the traits of the merit employees in order to find a way out of the complexity of new organizations whether it is complexity of conditions or complexity of relations (Latifi, 2008). The efforts directed toward fulfillment of organizational objectives are successful only if they can meet individual needs (Robbins and Judge, 2014). Various researches have been conducted on the motivation, and the underlying generator or inhibitor factors; the outcomes of those researches provide us with several assumptions about human behavior; they also help managers and organizations to adopt suitable decisions. Herzberg has studied human motivations (Robbins, 2015). The findings of his research correspond to the results of twelve different studies conducted on over 1600 employees working in different jobs at different countries. Herzberg's hygiene-motivator theory is a proof to the deep impact on the motivation of employees (Schermerhorn, Hunt and Osborn, 2008).

Looking at the findings of Rothwell and Kazanas (2011) studies, we can find the importance of motivating people. Their findings show that employees keep their jobs and avoid firing by spending 20 to 30 percent of their potentials. Their studies also show that if employees are motivated, they spend almost 80 to 90 percent of their potentials.

The strategic role of IT knowledge-workers and IT Companies rendering services to various organizations grows expeditiously as the result of rapid progress and development of IT, and its vast application in organizations,. Moreover, it is to the organizations to benefit from the incremental motivations of IT knowledge-

workers, and use their abilities and skills to the fullest, and consequently promote their performance level, and productivity.

## II. THEORETICAL FRAMEWORK

Motivation theories categorized in two groups: process-based theories and content-based theories (Greenberg, 1987). The content-based theories attempt to identify the motivating factors of individuals. The theories refer to the needs and drivers of the motivation. But process theories mostly focus on the process of motivation; they put motivating factors second to conceptual process of motivation (Robbins, 2015).

### I. Content-based Theories of Motivation

The first and well-known theory in this category is Maslow’s hierarchy of needs. Maslow states that there are five types of needs inside each human being, and if a need is fulfilled enough, it is no longer motivational (Robbins, 2015).

Herzberg's two-factor theory is also one of the most cited theories in this category. It explains that two types of factors mediate in the motivation process; the first group factors avoid dissatisfaction, but do not result in satisfaction, they are called hygiene factors. The second group results in motivation and satisfaction, which are called motivational factors (Robbins and Judge, 2014). In his X and Y theory, McGregor talks about two types of positive and negative assumptions about human nature; in theory X (negative facet), the occupation is not motivational, while in Y theory (positive facet), human is in search of responsibility and task by nature.

McClelland in his theory of needs defines three types of needs for human: achievement, power and affiliation (McClelland, 1961).

In his ERG needs theory, Alderfer categorizes fundamental needs in three groups including existence, relatedness and growth (Robbins, 2015). X-Y theory, McClelland’s theory of needs and ERG theory are also categorized as content-based theories of motivation.

### II. Process-based Theories of Motivation

In contrast, some of the process-based theories are explained here. By expectancy theory, Veroom proposes that a person will decide to behave or act irreverently in a certain way because s/he would be motivated to select a specific behavior over other behaviors due to what s/he expects the result of that selected behavior will be (Alvani, 2006).

The equity theory of Adams (1965) states that employees seek to maintain equity between the inputs that they bring to a job and the outcomes they receive from it against the perceived inputs and outcomes of others. The belief is that people value fair treatment which causes them to be motivated to keep the fairness maintained within the relationships of their co-workers and the organization (Schermerhorn, 2008).

Edwin Locke put forth goal setting theory. He believes that it's an effective tool for making progress by ensuring that participants in a group with a common goal are clearly aware of what is expected from them (Robbins, 2015).

Porter and Lawler’s Performance- Satisfaction Theory (Lawler, and Porter, 2008) is a more complete version of motivation depending upon expectancy theory. This is a multivariate model explaining the relationship existing between job attitudes and job performance. The assumptions of the theory are: Individual behavior is determined by a combination of factors existing in the individual and presented in the environment.

Table 1 compares motivational and assumptions of process and content-based theories of motivation.

Table 1: Comparison of Content and Process-based Theories of Motivation

Theory of Motivation	Motivational Factors	Assumptions
<b>Maslow’s Hierarchy of Needs</b>	Meeting a lower level need results in a motivation to meet the higher need in the hierarchy.	There are five types of needs. Need is the main reason for motivation.
<b>Herzberg’s Two Factors Theory</b>	Sense of achievement, Recognition, Growth and promotional opportunities, Meaningfulness of the work, Responsibility	Job satisfaction or dissatisfaction is not inevitably the result of existence or lack of several factors.
<b>McGregor’s Two Factor Theory</b>	Theory X: intense control of workers	There are two viewpoints about human: positive and negative.

	Theory Y: encouraging employees to commit to organizational goals	
<b>McClelland's Theory of Needs</b>	Promote the need to power and achievement	There are three main needs in human: achievement, power and affiliation.
<b>Alderfer's ERG Theory</b>	If one thinks he or she can meet an active need by working, s/he is motivated.	There are three fundamental needs: existence, relatedness and growth.
<b>Verroom's Expectancy Theory</b>	Motivation = Valence * Expectancy (instrumentality)	The amount of motivation and effort are functions of valence and expectancy.
<b>Adam's Equity Theory</b>	Treating employees with fairness	Workers compare their outputs with others.
<b>Locke's Goal-setting Theory</b>	Higher level needs lead to motivation.	Goals determine what should be done and how much effort should be extended to it.
<b>Porter and Lawler's Performance- Satisfaction Theory</b>	The value of the reward, the perception of what the required task is and the probability of achieving it, fairness of rewards.	The rewarding system should be based on organization goals.

### III. New Theories on Motivation

In their social identity theory, Mitchell and Daniels (2003) state that self-interest is an important factor in promotion of individual motivation and workers' performance. People with high self-interest set high goals and work harder.

The action theory states that 1) an action starts with a goal, 2) actions lead to future events, 3) plans and strategies are developed to achieve the goal, 4) a strategy is adopted 5) and implemented 6) and feedback of strategy implementation is provided (Latham and Ernest, 2006).

Hogan, the social analytical theorist, believes that human has inherent needs to 1) accept and confirm 2) be able to control resources and 3) predict and order (Gall, Charbonneau, Clarke, Grant and Shouldice, 2005).

Defining four dimensions of a human being, i.e. body, mind, heart and spirit, Covey (2004) believes that we are shifting from "Thing Paradigm" to "Whole-person Paradigm". Based on the four dimensions, Covey introduces four needs for people: need to live, need to learn, need to love and need to leave a legacy. Fulfilling these four needs managers can motivate people.

### III. RESEARCH MODEL AND QUESTIONS

We have identified the factors influencing motivation of IT knowledge-workers of IT Companies rendering services in Tehran using Herzberg two-factor theory, and its inherent hygiene and motivational factors. The following questions were set forth:

- 1) What is the degree of influence and importance of factors influencing the motivation of IT knowledge-workers in IT Consultancy and Services Companies in accordance to Herzberg theory?
- 2) Are the factors influencing the motivation of IT knowledge-workers differently prioritized in men and women?

### IV. RESEARCH METHODOLOGY

This is an applied research as far as the purpose is concerned. It is a descriptive-survey type; and a questionnaire is used as a means of gathering data. The population consists of the IT Services Companies of Tehran. Data is collected by the means of questionnaire used by Mohammad Zohani in his dissertation (Zohani, 2005).

The questionnaire consists of 55 questions. The population was 1500 persons and the sample size was 205 persons in accordance to Krejcie and Morgan's table (1970). The sample size was doubled to 410 since we wanted to study the role of sexual differences in prioritizing the factors. Some 30 questionnaires were distributed on trial basis, and its reliability was calculated in SPSS software by Alpha Croanbach to be 0.79, which signified a suitable reliability. Then 450 questionnaires were distributed in the population on random basis out of which 420 questionnaires were answered.

Table 2 indicates the profile of the respondents.

Table 2: Profiles of the Respondents

Specifications of Respondents	Marital Status		Sex		Age (year)					Education				
	Single	Married	male	female	55 and Above	45-54	35-44	25-34	Under 25	Doctoral	Master's	Bachelor's	Associate's	Diploma
Frequency	184	230	212	208	4	10	56	280	70	8	86	242	56	26
Percentage	43.8	54.8	50.5	49.50	1	2.4	13.3	66.7	16.7	109	20.5	57.6	13.3	6.2

### V. FINDINGS

To identify factors influencing the motivation of IT knowledge-workers, factor analysis was used. The value of KMO was 0.726, which shows the sufficiency of sampling. The meaningfulness of Bartlett indicated that all conditions for factor analysis were present (Table 3).

Table 3: Factor Analysis Sufficiency Index

Index	Value
KMO sample sufficiency	0.726
Bartlett's Test	2.418E4
Degree of Freedom	1540
Significance	0.01

Eleven factors were extracted from 55 variables by using principal component analysis and Varimax rotation. Those factors accounted for 77.96 percent of variance.

**The first factor** (Managerial and leadership style) had an Eigen value of 7.026 and accounted for 12.564 percent of total variance of the variables (equal to 16 percent of common variance).

**The second factor** (job security) having an Eigen value of 6.442 accounted for almost 11.503 percent of total variances (equal to 14.7 percent of common variance).

**The third factor** (procedures and instructions) had an Eigen value of 5.761 and accounted for 10.287 percent of all variances (equal to 13 percent of common variance).

**The fourth factor** (working conditions) had an Eigen value of 4.749 accounted for 8.481 percent of total variance of variables (equal to 10.8 percent of common variance).

**The fifth factor** (responsibility and authorities) had an Eigen value of 4.115 and accounted for almost 7.348 percent of total variance of the variables (equal to 9.5 percent of common variance). **The sixth factor** (relations to coworkers) had an Eigen value of 3.399 and accounted for 6.069 of all variables (equal to 7.7 percent of common variance).

**The seventh factor** (meaningfulness of work) had an Eigen value of 3.078 and accounted for 5.496 percent of total variance of the variables (equal to 7 percent of common variance).

**The eighth factor** (salary and allowances) had an Eigen value of 2.78 and accounted for almost 4.965 percent of total variance of the variables (equal to 6.4 percent of common variance).

**The ninth factor** (acknowledgement and recognition) had an Eigen value of 2.479 and accounted for almost 4.427 percent of total variance of variables (equal to 5.7 percent of common variance).

**The tenth factor** (sense of achievement) had an Eigen value of 2.103 and accounted for 3.756 percent of total variance (equal to 4.8 percent of common variance).

**The eleventh factor** (growth and promotional opportunities) had an Eigen value of 1.729 and accounted for 3.087 of total variance (equal to 4 percent of common variance).

Table 4 shows the factors and the factor load of each variable.

Table 4: Factor Matrix after Rotation

	Factors										
	1	2	3	4	5	6	7	8	9	10	11
<b>1<sup>st</sup> Factor: Leadership Style</b>											
Being appraised	0.967										
Justice in payments (promotions and merits)	0.960										
Involving members in planning for section	0.966										
Competency of the immediate manager	0.956										
Working via consultation with others	0.967										
<b>2<sup>nd</sup> Factor: Job Security</b>											
The job is prone to daily change		0.948									
Promising future of the job		0.961									
Possibility of working till retirement		0.969									
Easy life during retirement		0.948									
Possibility of degradation of position		0.978									
<b>3<sup>rd</sup> Factor: Procedures and Instructions</b>											
Conformance of rules and goals			0.981								
Adherence to working hours			0.945								
Stability of instructions of the organization			0.947								
Circulars lead to better fulfillment of tasks			0.960								
Acceptance of goals and policies			0.977								
<b>4<sup>th</sup> Factor: Working Conditions</b>											
Favorable physical condition				0.049							
Conformance of work environment and job				0.945							
Possibility to use facilities				0.957							
Facilities meet the job needs				0.952							
Necessary office facilities				0.963							
<b>5<sup>th</sup> Factor: Responsibility</b>											
Authority in fulfilling tasks					0.953						
Feeling responsible toward tasks					0.927						
Being accountable against senior manager					0.608						
Correct fulfillment of trusted tasks					0.938						
Delegation of specialized tasks					0.924						
<b>6<sup>th</sup> Factor: Human Relations</b>											
Friendly relations with coworkers						0.945					
The interest of manager to hear suggestions						0.940					
Team work along with coworkers						0.918					
The teaching nature of manager's behavior						0.373					
Participating in celebrations with coworkers						0.943					
<b>7<sup>th</sup> Factor: Meaningfulness of work</b>											
Initiatives							0.931				
Necessary of cooperation with other workers							0.935				
Task complexity							0.934				
Enjoyable tasks							0.803				
The same job would be selected, if asked							0.556				
<b>8<sup>th</sup> Factor: Salary and Allowances</b>											
The salary corresponds to the expenditures								0.925			
Fairness of payments compared to the tasks								0.919			
The rewards are based on performance								0.588			
The salary correspond to the education								0.494			
The job has welfare and additional facilities								0.920			
<b>9<sup>th</sup> Factor: Recognition</b>											
Gaining the attention of the manager									0.940		
Pay attention to views and suggestions									0.301		
The social status of working in IT sector									0.364		
Allocation of budget for IT sector by the state									0.954		
Importance of IT jobs over other jobs									0.939		
<b>10<sup>th</sup> Factor: Sense of Achievement</b>											

Success in fulfilling tasks										0.582	
Fulfilling the task in a favorable manner										0.598	
Sharing in the success of the organization										0.756	
The importance of the organization success										0.770	
Sense of achievement										0.764	
<b>11<sup>th</sup> Factor: Growth Opportunities</b>											
Possibility of progress in occupational skills										0.740	
Matching promotions and individual skills										0.766	
Tasks result and promotional opportunities										0.757	
Possibility of higher education										0.611	
Possibility of progress in the career										0.604	
<b>Eigen Value</b>	7.02	6.44	5.76	4.74	4.11	3.39	3.07	2.78	2.47	2.10	1.72
<b>Variance Percentage</b>	12.5	11.5	10.2	8.48	7.34	6.06	5.49	4.96	4.42	3.75	3.08
<b>Communalities (%)</b>	16.0	14.7	13.2	10.8	9.42	7.78	7.04	6.36	5.67	4.81	3.95
<b>Croanbach Alpha</b>	0.90	0.98	0.78	0.91	0.76	0.86	0.98	0.88	0.97	0.93	0.83

Friedman test was used to prioritize factors influencing the motivation of IT knowledge-workers in men and women categories. The results are provided in Table 5.

Table 5: The Priority of Factors in Groups of Men and Women

Factors	Men		Women	
	Average rank	Priority	Average rank	Priority
Responsibilities and authorities	8.18	1	8.57	1
Job security	7.28	2	7.51	2
Relations to coworkers	7.15	3	6.86	4
Acknowledgment and recognition	7.00	4	7.47	3
Sense of achievement	6.54	5	6.57	5
Salary and allowances	6.30	6	6.18	6
Nature of the work	5.72	7	5.10	8
Management and leadership style	5.46	8	6.02	7
Working conditions	5.37	9	4.75	9
Procedures and instructions	4.10	10	3.53	10
Growth and progress	2.89	11	3.43	11
Frequency	212		208	
$\chi^2$ test	472.562		472.562	
Degree of freedom	10		10	
Significance	0.01		0.01	

The results of Friedman test comparing the motivational factors of IT knowledge-workers show that there is no significant difference in the priority among men and women. The only differences relate to the rank of acknowledgement and recognition (fourth rank in men, and third rank in women), relations to coworkers (third in men, fourth in women), management and leadership style (eight in men, seventh in women) and the nature of work (seventh in men, eighth in women). Therefore, there is no significant different in the motivation influencing factors among men and women.

## VI. DISCUSSION AND CONCLUSION

Today, human resources have turned into an attractive topic; it is not solely due to their popular roles, but it is their influence on other key factors. Employing better human resources has turned into a competitive advantage in improving organizational performance; and it has opened a new chapter in the organizational behavior studies (Robbins, 2015). Organizations are increasingly using information technology services offered by IT knowledge-workers. Acknowledging the important role of IT knowledge-workers in Iranian organizations, we have studied the factors influencing the motivation of IT knowledge-workers in accordance to Herzberg's two-factor theory. Eleven hygiene and motivational factors were extracted in the study, which are interpreted in this paper.

The study shows that management and leadership style is the most important factor influencing the motivation of IT knowledge-workers, which is considered as a hygiene factor in Herzberg's Theory. The finding of this research corresponds to the research of Reese (1991) who studied the factors influencing middle managers in U.S. companies and identified management and leadership style as the second motivational factor. It also

corresponds to the findings of Lundberg and her colleagues testing Herzberg's Theory on hospitality and tourism industry which the factor is ranked third (Lundberg, Gudmundson and Andersson, 2009). While the study of motivational factors influencing administrative employees of Tehran Tax Services Office indicates that management and leadership style is ranked as the sixth factor (Zohani, 2005). The findings indicates that IT knowledge-workers in Iran give a greater importance to the leadership style of their immediate manager and some topics such as the degree to which the manager consults and involves workers in decision making and solving organizational issues..

As a hygiene factor, job security is the second motivational factor in this study, but Mak and Sockel (2001) gave lower importance to job security in their research on motivation factors of IS (Information Systems) workers (Mak and Sockel, 2001). James Linder (1998) identified job security as the most important motivational factor in his research studying bank employees (Linder and Andersson, 1998). Kuga and Brayant (1999) classified job security as the second factor influencing the motivation of insurance workers (Kuga and Brayant, 1999). Zohani ranked job security as fourth motivational factor (Zohani, 2005). It is because of the fact that IT knowledge-workers in Iran feel insecure to stay in the organization since their knowledge and expertise are not in parallel to the world and Iran lags behind the modern world in IT sector; and unions do less to protect workers against employers. This is an indication of why some parts of the findings do not correspond to the results of some Western researchers studying the factors motivating knowledge-workers in developed countries. Considering national factors, including cultural aspects of Iran (Latifi, 2006), as a less developed country, can interpret the higher priority of job security for Iranian knowledge-workers comparing with the findings of studies in more developed countries.

Therefore, managers in less developed countries like Iran should take more effective measures to employ and keep IT knowledge-workers.

The third factor influencing IT knowledge-workers is procedures and instructions. This factor had the lowest rank in most of the researches done in the area. Reese (1991) and Linder (1998) concluded that procedures and instructions do not play considerable role in motivation of knowledge-workers (Linder and Andersson, 1998). Moreover, the research of Lundberg and Gudmundson (2009) on hospital and tourism industry workers confirmed the finding. In the research of Zohani, procedures and instructions ranked as fifth motivational factor (Lundberg, Gudmundson and Andersson, 2009). But the findings of the present study shows that procedures, processes and policies play an important role in motivation of workers from the discretion of IT knowledge-workers; which seems to be the result of adopting instructions that were not already tested.

Working environment and conditions are known as the fourth motivational factor, which corresponds to the findings of Mak and Sockel (2001) who labeled it as the most important factor for keeping IS workers (Mak and Sockel, 2001). According to the findings of Zohani, working conditions gained the second rank amongst motivational factors influencing Tehran Province Finance Department workers (Zohani, 2005).

The present study shows that IT knowledge-workers believe that it is necessary to have up-to-date and suitable hardware and software equipment on one hand, and provide necessary training for those workers to use such equipment, on the other; they further believe that such approach will result in an increase in their performance and productivity level.

The fifth factor is responsibility and authority. Reese (1991) ranked responsibility as the most important motivational factor of middle managers in the USA. In addition, Lundberg and Gudmundson (2009) tested Herzberg theory on hospital workers and found that responsibility and authority are the most important motivational factor for those workers (Lundberg, Gudmundson and Andersson, 2009).

Human relations are identified as the sixth motivational factor. The findings of Mak and Sockel (2001) did not place much significance on human relations in IS workers (Mak and Sockel, 2001). Moreover, the findings of Kuga and Brayant (1999) and Lundberg and Gudmundson (2009) show that this factor does not significantly influence the motivation of workers (Kuga and Brayant, 1999). But the research of Zohani identified human relations as the third motivational factor of Tehran Finance Department workers, which somehow corresponds to the findings of this study (Zohani, 2005). Iranians give a great value to friendly ties and relations, that is why, IT knowledge-workers as typical Iranians want intimate and close relations to their immediate manager and coworkers and welcome team work. Iranian collectivist cultural (Latifi, 2006) can explain the importance of this factor for Iranian employees.

Meaningfulness of work, which is a motivator factor in Herzberg's theory, is the seventh factor influencing motivation of the workers. In contrast, in Mak and Sockel's study meaningfulness of work was the third motivational factor of IS workers (Mak and Sockel, 2001). Kuga and Brayant (1999) identified nature of the work as the fourth motivational factor, which somehow corresponds to the findings of this research (Mak and Sockel, 2001). According to Zohani (2005), meaningfulness of work was the ninth factor influencing the motivation of Finance workers

Salary and allowances are the eighth motivational factor. Linder and Andersson (1998) gave them the fifth place in his research on bank employees. Mak and Sockel (2001) did not place a significance on salary and allowances as a motivational factor in their research on IS workers (. But it ranked as the first motivational factor in the study of Zohani (2005). Since the level of salary and allowances is not that much satisfactory in different private and public sectors, the finding seems rational. But the findings of this research show that IT knowledge-workers place less importance on salary and allowances compared to other factors.

Acknowledgement and recognition, as a motivator factor, is the ninth influential motivating factor of IT knowledge-workers. According to Mak and Sockel (2001), this factor is one of the most important factors influencing the motivation of IS workers (Latham and Seijts, 1999).

Kuga and Brayant (1999) introduced acknowledgment and recognition as the most important motivational factor. In addition, Lundberg and Gudmundson (2009) identified acknowledgment and recognition as the most important motivational factor in tourism industry workers based on Herzberg theory. The finding does not correspond to the findings of this study, but it somehow corresponds to the findings of Zohani research (2005), which places acknowledgment and recognition in the eleventh rank of financial knowledge-workers motivating factors , it mostly reflects the cultural, social and economic conditions of Iran.

Sense of achievement was identified as the tenth motivational factor. As seen, sense of achievement -which seems to be one of the most important motivational factors from the viewpoint of the workers- is not that much important from the viewpoint of IT knowledge-workers; the underlying reason can be traced in the organizational culture ruling IT Services and Consultancy Companies in Iran. According to Mak and Sockel (2001), sense of achievement is an important motivational factor for IS workers. Zohani (2005) identified sense of achievement as the seventh motivational factor, which corresponds to the findings of this research to some extent.

The results of the two studies conducted in Iran are closer compared to the ones conducted in developed countries; that is the findings of the present study indicate that sense of achievement is not classified as a concern for IT knowledge-workers in Iran. It can be inferred that some other factors interfere in the perception of workers from hygiene and motivational factors. And hygiene and motivational factors are relative concepts. It means some factors marked as hygiene factors may work as motivational factors. The reason may be traced back in social, cultural and economic conditions; any definite answer needs further studies. Nevertheless, it is to managers to pay attention to this concept, and provide a suitable ground to promote the position of sense of achievement in IT knowledge-workers.

Growth and promotional opportunities were the eleventh and last motivating factor of IT knowledge-workers. Reese (1991) introduced growth and promotional opportunities as the fourth motivational factor amongst middle managers in the USA. Kuga and Brayant (1999) identified it as the third motivational factor. As you can see, these findings do not correspond to the findings of this study. Zohani measured it as the eighth motivational factor of Tehran Province Finance Department workers, which somehow corresponds to the findings of this research (Zohani, 2005). The findings of this research show that there is not any standard procedure for job progress of IT knowledge-workers, and the ruling procedures are based on individual tastes. As was the case with the sense of achievement, the pattern for growth and promotional opportunities does not correspond to the findings of Reese, Kuga and Brayant as well as Herzberg, it is also an indication of the presence and influence of some other factors namely social, political or economic factors. It also promotes the idea of relativity of Herzberg hygiene and motivational factors.

Below are some recommendations for increasing IT knowledge-workers motivations in developing countries:

- 1) While using new monitoring and supervision methods, the senior managers of IT services companies should define a suitable system for determining promotions, positions and merits and provide the ground for knowledge-workers to achieve them on the basis of their competencies,
- 2) Job security is a concern for all knowledge-workers on different organizational levels, but there is job insecurity in the IT sector as the result of rapid advancement in the information technology sector and the relevant knowledge. Therefore, human resources and technical managers of IT departments should place a particular importance to IT knowledge-workers job security and take effective steps to increase the occupational motivation of these workers.
- 3) Having regard to the fast speed of information technology and outwearing of IT knowledge-workers' know-how as well as the expansion of IT sector, seminars and training courses can be used to update the specialized knowledge and skills of these workers in parallel to state-of-the-art technologies to motivate IT knowledge-workers.
- 4) Knowledge-workers should participate in compiling administrative instructions and procedures in order to accelerate the current activities of the organization particularly in the IT sector and provide a unity of practice,



- 5) To motivate the knowledge-workers, a particular attention should be given to the accountability of the knowledge-workers, delegation of authority and big and small tasks as well as holding them accountable to the trusted responsibilities.
- 6) Further cross-cultural studies are needed to identify national factors interfering in the categorization of hygiene and motivational factors in developing and developed nations.

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