Studying the necessity of developing (IT) Information Technology and Communications, from the basics of future researches point of view

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Abstract

In this article, different prospects of Information and Communication Technology, would be studied and discussed by communicating with future researches. What is obvious is that for solving the problems related to information and communication technology, managers and organisers in this field should be ahead of their time, because this field is full of instability and uncertainty. The only approach and policy that is possible to be successful and prospering, is try to acknowledge the future and its effective components. Although, this try is accompanied by risks, but accepting this risk is much wiser than watching the realisation of developments (in future) and then look for variety of solutions. Reaching this state of readiness needs special instruments and solutions. Future searching, as a modern knowledge, which could be useful for solving and forecasting the information and communication technology problems, would be introduced and with explanation of future research studies domains, the circumstances of its effects on information technology and the basis of its implementation in information and communication technology discussions, would be expressed. Future research, as a different mean of prospect, has been developed. This instrument, would consider the future alternatives of beneficiary fields, and thus, it will help the decision making processes in different levels.

Keywords: future research, information and communication technology, futurism.
Introduction and expressing the issue
In the third millennium that information is proposed as the principal pillar of civilisation, new steps are being taken in order to modify technology. Vast accessibility to information networks is herald of improving the efficiency, with higher intensity. In addition, information technology in long term causes an increase in innovations by creating and distributing thoughts and ideas. In the whole world, the information technology is creating a new revolution that its importance is not less than an industrial revolution. This revolution, develops new and impressive capacities in the range of human knowledge, and creates instruments that would change the nature of work and life (Scholar, Holly, 1994).

The communication technology also, as it is known by its name, would refer to a range of technology that is being based on new communicative improvements. Because of the intense reliance of these two technologies on each other and their significant impact on the international economical environment, sometimes these two concepts are implemented beside each other. As regards that the information role in information technologies is important (Ghadiri, Roohollah; 2006).

The focus point of information technologies, transfers from other elements of technology to information and informative technical knowledge. In the last few years, substantial improvements have been occurred in the context of informational and communicational technologies. Data showing these improvements in hardware arena would increase the computational power. In recent years, the processing rate has been quadrupled. Information and communication technology has turned the way of acting and thinking of economical institutions in relation with business (Carr, 1353).

By developing this technology, the increase in the annual average efficiency growth scope in the past 4 years has become doubled, which is equivalent to the efficiency growth in last 2 decades (Golbon, Asghari: 1995).

The function of information industry resulted in decreasing the costs. Unfortunately, in Iran, this modern technology has not been taken into consideration and its required appropriate substructures have not been developed properly. In addition, the efficient professionals in this field, also, are a few in the country. Also, there are other limitations of rules in developing this technology (Malekifar, Aghil; 2007).

Phenomenon such as constant economical growth; low amount of unemployment; the quickly increasing role of information and communication technology; the consistently high value of shares in stock market, especially in improved technology field and constant renovation of institutes and markets, in developed countries, in the last decade of 20th century that has occurred in industrial and economical developing field, has brought up this question for economists that whether a new economical environment has been developed? Responding to this question is positive in great measures. (Malekifar, Aghil; 2009)

This new environment is indebted of several principal factors and amazing improvement of information and communication technology (specially the hardware abilities) that has been observed in the last decade of 20th century. In relation to modern economy, there is another phenomenon called Internet. Internet, more than any phenomenon, is the symbol of modern economy. Only by pressing a key, there would be a connection as quick as the light speed, and an increase in connections has made the ability of jumping through the boarders of country, feasible (Haksli, Aldus; 2007).
In current century, the future researching is considered as a novel concept that yet has not being made conceptually and there are no significant resources available on that. Each concept has a specific evolutionary path and it has been created to encounter the specific challenges and issues. The future researching concept also, has been created by disability in forecasting knowledge, policy knowledge and strategic management knowledge, in responding to specific challenges (Hues, Stewart; 1991). It could be said that in order to have an extensive perspective about the future of information and communication technology (providence), we should know it (futurism); and in order to know it we should study and research it (future researches). In other word, the requisite of providence is futurism; and futurism requires future researches (Walsh; 1985). Therefore, the main question that we need to study in this research is that what is the necessity of developing information and communication technology, from the basics of future researching perspective?

**Literature review**

The technology future researches, for the first time in late 50’s and early 60’s, in United States, especially in defensive field, was used as an initiative policy instrument. After that in 1970, Japan decided to do future researching with a 30 year time horizon and with a science and technology’s future approach. Japan’s purpose of doing this was not only selecting better fields, but also was trying to offer proposals for decision makers in both public and private sectors, by deeply and vastly analyzing the long term approaches (Vahidi Motlagh:2005).

Also in Europe, France and after that Sweden and Norway, performed their first future researching program in early 80’s, and in 90’s most European countries such as Germany, Netherlands and Ireland, started to use these instruments. The 90’s had witnessed a major explosion in technology future researching performances in most of the world specifically in developed and industrial countries. According to the developments that occurred in Iranian government because of Islamic Revolution and 8 years of Iran and Iraq War, since 1380 in order to preparation of the fields for this program, effective and efficient proceedings have been performed.

At the beginning of the leadership, the centre of modern industries from ministry of industries and mines, with the presidential technology cooperation office had the responsibility of this necessary action, and gradually with smoothing the path, the other governmental institutions started their functions in this arena. Performing a future research project correctly and effectively needs knowledge about the dimensions of a providence project. These dimensions should be known perfectly, to have a clear vision about all types available for each dimension. Choosing a specific type of dimension of future research project, depends on different variables and factors. It is because of these variables that the future research projects in different countries are done differently.

Martin has described providence as a systematic process with a look to the long term future in scientific, technological, economical and social aspects that its goal is to determine the areas of strategic researches and creation of modern technologies with most social and economical benefits. Providence is a process that needs a systematic and collaborative approach for developing efficient strategies and policies in moderate term and long term future. In fact, providence, considered as planning instruments in science and technology sector.
Another definition of providence, which has been implied by Luke Giorgio, is “systematic study of developing science and technology that has a strong impact on industries competition, creating wealth and increasing life quality”. The department of providence in European Union; Horton, Lorakotanzo, Goigan (people who involved in the foreign providence of Germany project) and Webster, also have defined the providence from different dimensions. Holistic in providence, has a specific importance and position. In table 1, different components of providence definitions have been compared together.

Methodology of future researching in information and communication technology

When purposes and goals for future researching in information and communication technology’s area clearly established, right future researching approaches also need to be chosen; as without any doubt, one of the most important parts of the future researching is to choose the right way between the available approaches. And all the problems that till today have been raised about the future researching and the value of using it in codification of comprehensive programs of information and communication technology management, are notable in case that an appropriate approach of future researching could be implied for helping the information and communication technology comprehensive management. Certainly, one or several specific methods could not be prescribed for performing the future researching projects in this area (or any other professional areas). But, as guidance, for selecting the appropriate method, in performing each future researching project in this area, we could first be looking for a reasonable answer to questions like followings and then try to select the method:

1. What kind of information is required for reaching to a given goal? (For example, analysing the approach is appropriate for determining the information in a specific area).
2. Whether the methods are proportional with society’s thoughts and culture? (For instance, whether individuals would spend the required time for answering the Delphi’s questionnaires?).
3. Who are the relevant professionals and how could their knowledge be achieved? (Whether constructing small groups of professionals with a brainstorm approach is simply doable?).
4. How is the ability to effect on future programs? (For example, by using Delphi’s approach, we could make a connection network between individuals).

In area of information and communication technology, by reliance on the experiences derived from cooperation in three future researching projects, low researches and also comparative studying of the experience of several proposed countries managers in future researching projects, we propose “the retrospection approach from future to today” for performing the future research projects in information and communication technology area. This approach is one of the most capable of future researching methods that by providing alternative images of future, would analyze the conceivable of each of the future consequences carefully and completely, and then would offer these images in a state that describe the future multipolar situations and show the limitations and large boarders from the conceivable and achievable point. Also, identify the strategic choices of the considered area and along this, imply specific decisions for “closing” or “keeping open” some of the
identified solutions for future and will help to develop the options spaces, strategies and solutions.

Normally, in the world “retrospection from future to today” about very complex subjects that would impact on different parts and levels of society, the long term horizons planning in which different social dimensions and technological innovations and modifications have an effective presence, and because of long time we could have the required territory and space for intentional and effective choices, and subjects that are the centre of focus of a very vast and important social problem that have a large impact. Information and communication technology and its management also are the complex subjects and focus centre of problems that this method could significantly help to improve its situation.

Research findings
The management in the area of information and communication technology has always been an inexhaustible challenge for our country’s managers. Turmoil and quick and continuous changes in principal components of information and communication technology alongside problems such as: variable government’s policies, the number of components that are effective on information and communication technology approach, the principal position of information and communication technology in development approach, the effective role of information and communication technology in people’s lives and etc, caused that the management of information and communication technology has been known as the most important and complex area of management and always in need of special attentions.

On the other hand, most of these problems and components effective on information and communication technology that are always available to decision makers and organisers in this area, in addition to have a multidimensional nature, the modification approach in them does not have a specified and linear pattern, means that only quantitative and statistical studies or spot forecasting for surveying and organising based on them are not enough and it is necessary that for studying the developments approach in them, more improved methods and instruments than common methods would be used.

The instruments that could help managers and organisers, would gain the maximum information about the future approach of each effective component or raised problems, and about available or emerging approaches in different aspects of problems and subjects that have a significant importance in information and communication technology, would reach an appropriate recognition. Yet, these methods or instruments not only should have the ability to respond to the maximum of available demands, but also should enable the managers and organisers to codify programs that are comprehensive, real, flexible, adequate to Iranian culture and tradition and have the capacities of modern world. Future researching is one of those instruments that not only could create an optimum interaction with semi living organism called information and communication technology, but also could provide an appropriate respond to the requirements of the information and communication technology’s management department.

With the help of future researching, the two fundamental objections about the future researching program approach will be resolved. As it gives the organisers of information and communication technology this ability that by forecasting the future, exit the passively situation related to that and by developing the horizon of vision and thoughts, helps them to quickly identify the modifications of patterns in planning and targeting approach of
information and communication technology and think of constant strategies adequate to these patterns.

The managers and organisers of information and communication technology with the help of future researching studies, could proceed to scientific identification of developments approach in different areas and to planning and codifying the adequate scenarios, for an intelligent intervention in creating a desired future, which is the final goal of the information and communication technology management in codifying programs. Future researching, would open the managers eyes to the future and causes the steps outside of everyday thoughts and would put a wider scope of the possible future events in the centre of their attention.

Future researching would help the information and communication technology managers to study problems with a more comprehensive vision, integrate their planning based on the constructed perspectives, use the consultation of all the professionals inside and outside their collection, have a constant and updated management of information and communication technology, attract everybody’s attention towards the future and what is going to be the outcome of today’s functions, promote the hope in future culture in the country by illustration of a desirable future, and by using all these draw the comprehensive partnership for their programs, instead of studying the issues in a sub systemic thinking format. Managers and organisers, with the help of future researching, and with interactions and seminars and without any part visions, would welcome the future transformations and would try to coordinate themselves with not only the current environmental situation but also with the emerging environmental situation.

Also, they could imagine the more number of possible to happen circumstances, among all the existing facilities in reality arena that their imagination would allow, and then identify the likely to happen future from these possible states, and then recognise the most desirables and the least desirables among these likely to happen events, and find remedies for realisation of desirables and prevention of non-desirables. The knowledge of foundation value of future researching allows the organisers of information and communication technology to find the right paths in their movement directions and connect the “present” to the “future” that comprises of their well concluded programs.

Future researching would help the decision maker managers of information and communication technology to not only identify the transformation points in technologies and management patterns of this section, but also to achieve new skills for encountering with declining role of tradition value systems with a more amenability and perception and attention in relation to quick changes. These new skills would help to create an adequate structure for pursuing more informed and more judicious policies in confronting the new complex challenges.

Discussion and conclusion
What is apparent, is that managers and organisers of this area should be ahead of present time in order to resolve the information and communication technology problems, because in this area full of instability and uncertainty, the only approach that is likely to be successful is try to identify the future and the components that effect on it. Although, this effort is accompanied by risks, but anyway accepting these risks is wiser than being an observer of developments realisation and then look for different solutions. Achieving this level of readiness, requires specific instruments and strategies. Instruments, in which the
characteristics of the third wave of management (change in order to adapting to the future environment) becomes meaningful.

The organiser managers in the area of information and communication technology, should be equipped with the management art in an instable and dynamic environment and in how to confront with changes and the exploitation of it, also should learn the future researching knowledge, as having a deep vision from the developments to the future is the urgent need of managers in this section. Future researching is an instrument that leads the organisers of information and communication technology to having a better insight and to look for hearing the noise of changes, and reminds them that future is the only position that they could have real power in it, because the past and the present are always beyond control and domination and it is only the future that could be formed and implemented as they want.

Today, in the world, people would plan for the next 30 years for something that is small and non-significant, so they would never confront any problems, and if a country like United States does not have any information technology problems, is because it has been planed since several 10 years ago. The managers of information and communication technology area in the 21th century do not have to wait for the opportunities, but should have the ability to identify and exploit the opportunities and also should know the art of transforming the threats to opportunities and use them.

Designing an adequate structure for information and communication technology, greatly depends on leaders and organisers having exquisite and appropriate insights, and future researching help to achieve these insights. People, who search for their position in attacking the future, and have decided to achieve a bigger and richer share of future, require a new backup for long-term decision making and planning that is considered as future researching; a deep lucidity that its element is the constant look ahead.

Although, the point that has to come to attention is that we should not consider any long-term planning as future researching, because despite the long-term planning that has a determined movement towards a targeted future, in future researching we welcome the future transformations. Future researching is even different from our utopianisms conceptually, as utopianism only emphasizes the “desirableness”, but future researching in addition to desirableness also emphasizes the element of “feasibility”. Finally, having insights and analysis towards future, is a divine assignment for Muslim wise and intelligent managers in all area that they perform; because they should plan in a way that the boat of Islamic Revolution would reach the intention shore healthily and successfully, and this is a very serious duty.
References

1. Scholar, Holly; (1994), Tripartism, translator: Dr. Ahmad Doostmohammadi, Tehran, the institution of edition and publications of ministry of Islamic Culture and Guidance, first edition.
6. Malekifar, Aghil; (2007), be native to be worldwide, Tehran, the centre of future researching of defensive science and technology.
10. Vahidi Motlagh, Vahid; (2005), the future researching basics and some forecasting for the next 15 years, Tehran, Sharif Andishe Pardazan.