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Scientific Journal of  
**Pure and Applied Sciences**

Journal homepage: [www.Sjournals.com](http://www.Sjournals.com)

**Review article****Combination of engineering physics and modern scientific management in high technology achievements****A. Jahanshir<sup>a</sup>, A.H. Jahanshir<sup>b,\*</sup>**<sup>a</sup>*Bueinzahra Technical University Ghazvin, 3451745346, IRAN.*<sup>b</sup>*Tehran University of Medical Sciences, Tehran, 1414633784, IRAN.*

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## ARTICLE INFO

*Article history,*

Received 02 February 2015

Accepted 22 February 2015

Available online 28 February 2015

*Keywords,*

Knowledge-based management

High technology and modern

equipment

Industrial technology

## ABSTRACT

Studying and contemplating the current managerial structure of developed countries show that management and its strategic results have lost their own traditional and usual concept. In these countries, modern management has been developed depending on the knowledge-based infrastructures. In other words, long-term and short-term modern management in all fields is founded upon the predetermined ordered scientific principles and structures that has entered different scientific concepts, wishes and objectives into this field and affects both and non-organizational managerial procedure observed widely in each field of sciences. For this reason, the results and achievements of knowledge-based management of developed countries indicate the significant development of a kind of modern management in the basic and human sciences. While it is doubtlessly true that developed countries are better endowed more than others to compete in the global knowledge high technologies and new equipment management, the problem is rarely that the fewer successful countries lack sufficient scientific high technologies management.

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## **1. Introduction**

When one faced with these questions, Why are some countries more successful more than others in global competition in management of technologies and its uses? We have to study and review our scientific methods and path. Instead, these countries seem to lack the ability of science to manage technology, new industrial equipment, future manage plans and act. Acting means proceeding with science, technology and innovation strategies that is focused on the long-range use of scientific and high tech information to enhance global management. In contradistinction to developed countries, the developing countries can bring the correct science and technologies strategic plan to develop all kind of management, the true result is whether that countries can act effectively. While there are many barriers to acting regionally in the developing countries, first among them is that scientific management are not coterminous with high tech and equipment. Consequently, making effective decisions on scientific high technologies management in the developed countries, developing countries acting like developed countries, is neither smooth nor orderly. Therefore, to have effective, scientific management, we must explain a new kind of modern management. As many of the new theories in management that have emerged in the last decade, modern management bodies depend on extension of science and technology in traditional management and management theories. This new kind of management confronts a series of tasks that differ substantially from those of the traditional and usual management model.

## **2. The modern scientific management's process**

Today, guiding the processes of efficiency's increase in the scientific management(SM) committee's performance is one of the main government's long- term goals. Due to this, the main challenges of the political policies and strategic capabilities of the ruling governments in developed and developing countries closely related to the procedures and theories of SM (Wallerstein, 1974; Fang and Huete-Perez, 2001). By looking more deeply at the collation of the SM procedures of the different countries in comparison to the past and the present, clearly we find out significant differences in the management process of the developed countries. The base of the new SM's strategic pyramid in developed countries is based on integrated, powerful and multi-dimensional analytical committees. These committees with coherent, continuous and dependent structure are directed and managed by scientific – technical, political-economic, social subcategories therapeutic. Theories and modern management methods, even with high levels of international relations, are based on the same principles. In the first step, the main purpose of these committees is to evaluate and analyze the theories, technologies and modern equipment. In the second step, they expected to forecast various events in the long term, and assess the probability of the future events, that may be contributing to or originating from the current subjects or technology. In the third step, using cutting-edge technology, to the extent possible and according to need, they manage the modern and new equipment to solve necessary events. In other words, they use practical solutions, diverse and innovative strategic management theories of SM. In the last step, in order to prepare infrastructures of the modern management, they attempt to acquaint the non-specialist with new technologies and new scientific, technical, therapeutic, and medical methods through the mass media. After the last step of the modern management, management process continues like the current SM in developing countries. Since the correct and practical guidance of the various events will only achieve by strengthening the scientific base, it is necessary to predict the effects and risks of the events and to manage the results in the coming decades. For this reason, there should be a plan to expand the concept of "Modern Scientific Management" in developing countries with the aim of advancing knowledge toward understanding, recognition, and optimizing modern technologies use. By comparing the views of trans-management's subjects, we consider major shortcomings and challenges of the new management in developing countries as "Modern Scientific Management" (Jahanshir and Jahanshir, 2013; Jahanshir and Jahanshir, 2014).

As we have seen and heard in the international media news, developed countries are more prepared and more organized in managing technologies, new equipment, events and challenges. Now, the algorithm's main branches of management process and traditional management guidance of developing countries is regulated in the official governmental structure. By reviewing the pre-and post-SM process precisely in developed countries, methods and practices guidance and control of high technology and new equipment, it neither theoretically nor practically matches with the systematic algorithm of management in developing countries. In short, the survey of the scientific management in the mentioned countries shows that these two different management methods absolutely have three differences Index, 1- Timely intervention of equipment and

research findings 2- Regular organizing of science and technology industries alongside the new and modern sciences, 3- the guidance, long-term control and prevention of technologies and basic science. For this reason, by reviewing the algorithm of current management or in other words the traditional management mentioned above, it is necessary to give a new algorithm of the modern method and process of SM (Jahanshir and Jahanshir, 2014; Jahanshir, 2014; Jahanshir and Jahanshir, 2015). The modern SM system is one of the policies, which have been set through the integrated scientific management framework, which is at least in the policy's programs of developed countries in the last fifteen years. To prepare the views and to increase the awareness of new industrial developments, modern technology among professionals and non-professionals of the community about the equipment and research findings which are suggested by the new scientific committee is the main objective of the guidance, control, and prevention of all types of technologies and sciences Figure 1.

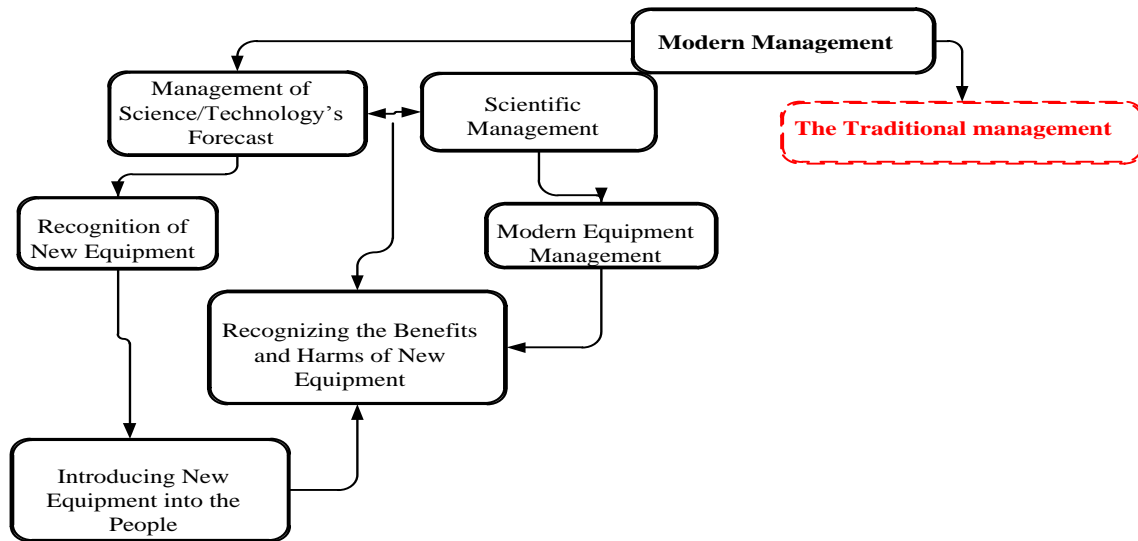


Fig. 1. Algorithm of The modern scientific management.

- Intelligent management of the Scientific in the future and present time
- Raise understanding and knowledge towards new technologies
- Identifying and preparing public and expert opinions
- Correct, logical, and scientific evaluation of new technologies
- Skills and having a command of the latest information to assess new equipment
- Investigation of the structure of the new and growing technologies

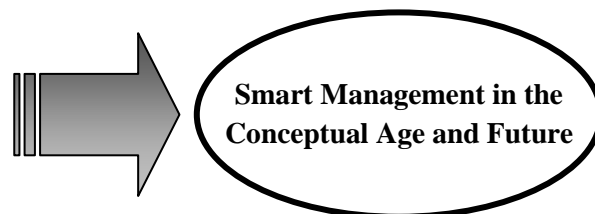


Fig. 2. Smart and scientific management in developing countries.

### **3. Achievements in industry and technology**

Currently, according to the results of the scientific management performance in non-advanced countries with traditional scientific management structure, prevention and predicting the future technologies or new science clusters will not always well formed. Therefore, to deal with the reasons for the failure of scientific management in developing countries and to predict the long-term cycle of future technologies, and events, we propose a plan according left side of the algorithm in Figure 1, mentioned above in Figure 2, which make an important contribution to the scientific management process. The results of science researches in recent decades show that the path of the theory and practical human knowledge's goes into the area of modern technology and new industrial progress. In this context, an important emphasis on the high-tech word can describe the role of basic science, and especially bold, the physical science. In more recent years, theoretical and applied physical issues and its applications have been devoted to different branches of physics and engineering physics. Now, it has a different route than before, and applied in various fields, such as medicine, engineering, industry, agriculture, etc. and involved with basic knowledge of physics which can develop modern technology and make new equipment (Markman and Siegel, 2008; Kumar and Jain 2004). Today, the Engineering Physics put his hand on the most of applied science researches, modern technology, and also improved the climate change- atmospheric conditions issues, health conditions, medical equipment, the greenhouse and livestock breeding issues. The importance of managing knowledge-based activities in physics engineering, in line with modern technology and modern equipment manufacturing is highly valuable and significant. Thus, in developing and semi-industrial countries, traditional views of management and strategy theories at leading engineering sciences, especially physics, must be put aside. Therefore, in this paragraph shortly we review new and modern aspects of management are discussed. Comprehensively management and aggressively pursue technology and its activities are the goal of Technology Commercialization (TC). Translating innovative ideas from the university to the marketplace is the first step of TC programs in order to reach sustainable development (Kumar and Jain 2004; So and Tae, 2003; Zahra and Nielsen, 2002). TC provides access to proof of concept funding and industry expertise to expeditiously advance inventions through the early technical and commercial feasibility assessments and milestones. TC manages all aspects of the basic sciences and technology transfer process and engages in sustainable and local economic development theories. Thereupon the goal of this line management is to bring the results and achievements of theoretical sciences to applied sciences and ccommercialization technology. In other words earning income and profitability is discarding from theory and basic sciences. Starting point of development and stability in modern industry, directly dependent on the effects of long term and macro management in industry and trade.

### **4. Conclusion**

Hence, the topic "modern crisis management" should expand in all centers and organizations related to the crisis of urban and non- urban areas until we obtain better and more appropriate views and opinions in order to eliminate all the future crises we may face. There is no long-term forecast system for survey and study the new technology idea and modern equipment based on science among developing or least developing countries. Developing countries, which are fundamentally, do not have the power of scientific management and lack both long and short term forecast in traditional management. These obstacles leave developing countries at a competitive disadvantage in the conceptual age and future. Despite difficulties of traditional management, there are countries around the developed countries that have recognized the potential strength in their technologies. Effective modern management and scientific management are defined as much by their scientific and masters to continuous learn-in about new trends and practices in industrial- technologies as they are by their individual qualities. The qualities required of individual modern management reflect the distinct tasks they face. The some case studies in this article describe the different approaches, issues and organizational forms that have characterized work of traditional (usual) management of technologies. The research in this report demonstrates that the key to creating scientific management beside traditional management is effective in developing and least developing countries in the conceptual age, which we can name it as SMART AGE. As we shown in second algorithm, in the conceptual age some of developing countries exactly know about scientific management and leadership. They know that while the study of scientific management and leadership has become a serious academic discipline, their countries' management will be more organize in all part of sciences, technology, industrial, economy, etc. As a base result in this article briefly give some suggestion on modern management

strategies with the goal of learning how to climb to have achievement in high technologies and also the sustainable development and commercial optimization in science and technology.

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