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Technology and Innovation

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Introduction

Nowadays, technology and innovation play a very important role in management. They do not only help companies to survive in turbulent times and adjust to modern needs, but also contribute to productions' improvement. For instance, those firms which in the time of appearance of the first computers began using these devices in everyday practice definitely came out on top. One of the striking examples is Bill Gates, who has not only used computers in the firm, but also improved them by creating Microsoft software. In such a way, he has showed that a successful company should focus on innovations as it is one of the possible ways to keep up with the times (Riper 2011). However, there are many conservatives who treat innovations as a high risk and method to destroy established order. To my mind, the management of innovation represents the central problem of company's growth and survival. Although a few years ago, Fransis Beckon's quote, "Knowledge is power" could be treated as the main principle of business, nowadays it should be transformed in such a way, "Knowledge applied to new technologies and innovations is power".

Analysis of the Role of Innovations and Technology in the Business World

The question of the necessity of constant changes in the business world has disturbed the society for many years. Classical economists, such as Adam Smith and Karl Marx, tried to explain the importance of innovation and its main constituencies. However, only in the twentieth century, Joseph Schumpter coped with this task. He pointed out three stages of the innovation process – invention, innovation and diffusion, and provided the definition to each of them. He identified invention as the first practical demonstration of an idea; innovation as the first commercial application of an invention in the market; and diffusion as spreading of the technology or process throughout the market (Foxon 2003). His idea is followed by modern scientists. However, the main accent is put on the relation between technology and knowledge. Pesh and Fundneider regard innovation as a key in knowledge driven society. They

treat it as “the most challenging process in the context of knowledge work” (Pesh & Fundneider 2008). They explain it by the fact that innovation cannot be based on different kinds of knowledge. Innovation is brought into life only with the help of radically new knowledge. Moreover, anticipation of future needs also play an important role in the process of innovation as it is a link between present and future needs of the company (Pesh & Fundneider 2008).

Each innovation may be regarded as a change brought into the common structure of the company. To adjust this change to the successful operation of the company, managers should analyze its influence from different perspectives. The strategy of sustainability helps them in this case. Buttriss has identified that approaches to sustainability may be classified into three categories: resource sustainability (a practice is sustainable if resources needed to carry on the practice are in-hand or foreseen), ecological sustainability (changes should contribute to protection and renewal of the biosphere), and social sustainability (developing human capability skills to adjust to changes and use their benefits) (Buttriss 2007). In the case of recourse sustainability, managers should evaluate the necessary amount of resources for innovation as well as ways of their achievements. Moreover, one of the greatest problems in the business world is the depletion of resources. That is why managers have to find an effective method how to save energy while getting the best results. There are many ways to achieve this goal. According to Stuteville and Ikerd, conserving, reusing and recycling of stored energy can improve the efficiency of energy use (Stuteville & Ikerd 2009). Thus, dealing with the changes, managers should firstly evaluate available resources, allocate them and find the way to attract new ones. This issue is closely connected with the second type of sustainability – ecological sustainability. It may be defined as “the obligation of a firm to use its resources in ways to benefit society and environment through committed participation as a member of society, taking into account the society at large and improving the welfare of society independent of direct gains of the company” (Hieu 2011). Benn and Baker have explained it in such a way, “example, social

norms, practices and attitudes need to evolve, so that they incorporate ecological concerns as well as the reverse" (Benn & Baker 2009). Thus, the company in its practice should not bring any harm to the environment but contribute to the improvements of its condition with the help of environmental management system (Cohen – Rosenthal 2000). The third kind of sustainability – social sustainability – deals with attitudes of the employees toward the changes. It helps to adjust the common culture of the firm to new principles brought by different kinds of innovations. The main problem that hinders the implementation of changes is cultural resistance to change. According to Doppelt, it can be defined as "a fear of employees that their power and authority, which is embedded in the organization's existing patterns of governance, may be at risk" (Doppelt 2010). Thus, workers do not want to lose their current position. It is a main reason to different kinds of resistance towards innovations. To cope with this problem, managers use such strategies as learning, seminars, revealing of benefits, comparing of old and modern situation and so on.

However, companies will not be able to deal with changes without certain change models and approaches within the framework of sustainability. Peschl and Fundneider present five examples of such models: 1) reacting and downloading; 2) restructuring and adaptation; 3) redesign and redirection; 4) reframing; 5) re-generating, profound existential change, and "presencing" (Peschl & Fundneider 2008). Regarding the first one, it becomes clear that the main principle of dealing with changes is to implement existing and well established behavioral, organizational recourses to solve the problem. Thus, the simplest way to deal with changes is to use available resources and their transformations. According to the fifth model, it is not enough. To bring the companies on a new level, the changes should be gradual and based on special preparations (Peschl & Fundneider 2008). Managers of every country choose the model taking into consideration current situation, resources, future goals and so on.
Each model is brought into life with the help of many approaches. Each

approach is connected with a certain kind of sustainability. For example, Kotter and Schlesinger set out six change approaches to deal with resistance to change within the framework of social sustainability. According to this approach, the main methods which can be used to deprive the employees of fear of changes can be education and communication (explanations of logic and benefits of the changes), participation and involvement (opportunity to take part in changes' implementation), negotiation and agreement (comparison of different point of views), manipulation and co-option (bringing resisters into a change management planning group), explicit and implicit coercion (forcing employees into accepting change by showing that resistance leads to loosing job, firing and so on) (Management.Net 2013). Each method within this approach is chosen by managers according to available resources, future objectives and so on. For example, if the change is necessary to be implemented immediately, the best choice is the last method. However, if the goal is to change the attitude of employees towards innovations by influencing their consciousness, all other methods will be useful.

Conclusion

In conclusion, innovations and technologies can be regarded as the most challenging processes in the context of knowledge work. To bring them into the practice of a company, managers have to deal with changes brought by them. It occurs on a three-level process of sustainability: resource sustainability, ecological sustainability and social sustainability. To achieve the goal of each kind of sustainability, different change models are used. Peschl and Fundneider present five examples of such models: 1) reacting and downloading; 2) restructuring and adaptation; 3) redesign and redirection; 4) reframing; 5) re-generating, profound existential change, and "presencing". They do not reject but complement the main functions of each other. Each model is brought into life with the help of many approaches. For example, Kotter and Schlesinger set out six change approaches to deal with resistance to change within the framework of social sustainability. According to it, the methods of education should be accompanied by the methods of practice, influence or even punishments depending on the targeted goal.

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