

## **The contribution of human resources management systems in achieving competitive advantage**

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### **Abstract**

*Competition has become a current and difficult problem for any organization. This raises the need for the companies to obtain competitive advantages. One way to do this is making use of appropriate information technology, which is the task of information systems for top management. Computer technology and data communication technology alter the parameters within which competition unfolds in all fields. Whereas in the past information technology was oriented to data storage, in the modern world it must provide a dynamic vision on the organization, facilitating adaptation to changes in business environment and thus ensuring competitiveness. In this way, information technology becomes a competitive weapon which is extremely effective in achieving the objectives of the organization. In addition, it is applicable in any field of activity regardless of the organization's size.*

### **Keywords**

*competition, organization, computer technology*

**JEL Codes: M 12, M 15**

### **Improving management productivity**

Real competitive advantage cannot be gained without increasing the productivity of workers. Since computer systems assist management, workers are represented by managers. Until recently, all discussions relating to productivity ignored the issue of management productivity, focusing on workers' productivity at lower levels of an organization. Viewed from a purely financial perspective, productivity and workers' productivity are, however, only part of the organization's productivity. For example, if management decides to launch a new product that customers will not buy, it is irrelevant whether the workers who manufacture the product work effectively or not. Having a good product at the right time has a greater impact on the organization than improving workers' productivity. One of the reasons why, until now, no particular importance to management productivity has been given is that managers, through the decisions they make, do not produce a distinct product. It is hard to measure managers' productivity using conventional methods (quantity of products manufactured / time required, etc.). Management productivity should be measured by the quality of decisions and time to make them. They depend largely on the quality and frequency of information, issues that have been treated above.

#### **1. Methods and techniques applied in decision-making**

Decision-making techniques have been developed, generally due to the need to get some good decisions. Each manager has a set of available tools (techniques / methods) to assist him in making decisions. Every organization, be it government or private, non-profit or taxable profit has developed a type of decision making to work with and finally gets to depend on it. Therefore the adoption of a new technique / method is often a difficult change for managers who come to resort to this option only in extreme cases in which the use of old methods led to a decision error with serious consequences on the organization.

There are two perspectives of decision-making approach, namely the approach in terms of problem solving process on the one hand, and in terms of the process of retrieval problems on the other hand. The first approach is aimed mainly to identify the problem, the solution and its implementation, while in the second approach the quality of the problem posed is essential.

Problem solving process

Solving problems is dependent on the type of problem to solve. According to Simon's taxonomy the types of problems are classified depending on the type of decision. Structural problems (Decisions in conditions of certainty) - are issues whose elements can be identified and quantified to find the correct answer. Mathematical and statistical models used for solving lend themselves to structured programming (eg Onicesu Method, method of global utility). Semi-structured problems (Decisions in conditions of risk) - are questions that contain structured and unstructured elements. Since these issues involve both computer use and human reasoning, it is important to build a proper human – computer interface. Addressing these issues is mostly quantitative (eg mathematical hope method, decision simulation). Unstructured problems (Decision in conditions of uncertainty) - are issues whose constituent elements cannot be identified precisely. Intuition and human reasoning are required in order to solve them. In these cases it is not possible to use mathematical or statistical models, decision making relying heavily on the decision-maker's experience. Solving these problems requires a qualitative approach and involves the use of heuristic methods (eg degrees of affiliation to the best choice method). A number of techniques have been developed over time to solve decision problems.

1. Engineering correct definition of the problems starts from the premise that most errors which occur in solving problems are due to their incorrect definition. To help define the real problems correctly it is advisable to use a chart of the causes and effects and a procedure to present the problem in the form of a diagram. The first step for the proper use of this technique consists in listing all the problems, symptoms and problems related to the matter and the designation of causal links that exist between them.

2. Redefinition technique is based on the fact that in many cases the solution to a problem depends on how the question is put. Redefining the problem in a broader context may help to deal with them. In most cases the problems do not have distinct solutions and managers must find a solution quickly. It is therefore useful to draw up a table defining the problems before trying to find answers to them.

3. Reversal technique involves tackling the problem from tail to head, allowing the manager to look at the problem from a different perspective than the classical one. There is a number of other techniques, such as: verification page - aims to separate spheres of influence within a period of time, Pareto chart - to identify more serious problems, the histogram allows troubleshooting charts, scatter diagrams to identify sites that present defects in the activity, control graphics - monitor the production process.

Two methods to solve problems are used in this approach:

Quantitatively oriented method

This method is derived from the scientific method formulated by Bacon and consists of the following steps:

1. Observation - consists in close observation of the phenomenon that defines the problem: facts, opinions, signs, etc.. This step implies identifying the problem.

2. Defining the real problem - is achieved through a careful analysis of all factors and all parties involved in the problem.

3. Developing alternative solutions – different courses of action or different solutions to the real problem are developed. By using computer quantitative models can be developed.

4. Selecting the optimal solution – aims to evaluate different quantitative models / solutions until the optimal one is found. There are standard models which do this. If mathematical relationships are too complex, there can be developed a proper model for choosing the optimal solution or sensitivity analysis can be performed.

5. Checking optimal solution - includes determining a target population and implementing the solution on this population.

6. Establishing adequate controls - one solution remains optimal as long as the initial relationships between factors are preserved. For an effective control of the solution a monitoring system can be established which will allow feedback to different managers.

This method applies to well-structured problems and the linear programming model can be used as a standard model if, for example, a production resource allocation problem arises in a company based on a minimum basic cost, or the transportation model if a vehicle allocation problem arises in a transport company.

The disadvantage of this method is that quite often, important information can be missing which affects the decision, and optimization is not possible without it. These limitations restrict the decision making process and lead to finding only a satisfactory solution not the optimal one.

#### 4. Decision-oriented method

This method leads to satisfactory solutions, not optimal ones, therefore it is usually applied when the first method cannot be used. Choosing this method in the decision making assumes that managers do not give up the idea of finding the optimal outcome, but they admit that at one level, this optimization is too expensive, time consuming and it is very difficult to obtain the necessary information to try and analyze the problem in terms of optimal. In these situations it is more practical to find only a minimum acceptable result, rather than to attempt, for example, maximizing profits gained. The method can be applied successfully, eg to analyze unprofitable loans granted by a banking institution. The steps to be taken in problem solving are:

1. Intelligence - involves looking for the environmental conditions which require decision or, in other words, recognizing the problem. It consists mainly in collecting the data which enables the manager to clearly define the problem and offer a few ideas on possible solutions.

2. Design - includes invention, development and analysis of various possible courses of action. It involves manipulating the data obtained in order to develop various alternative solutions to the problem.

3. Choice - involves an evaluation of alternatives and selection of the best ones developed in the design stage. The choice is made in terms of a satisfactory solution versus optimal solution. Sensitivity analysis can also be used.

4. Implementation – involves putting the solution into practice.

5. Control - consists in monitoring results and achieving any adjustments necessary.

#### 5. The process of identifying problems

This method goes beyond analyzing the current problems of the organization and focuses on identifying future issues and their impact on the organization. Thus, top management must identify problems and opportunities ahead.

6. Engineering thinking and creative approach which leads the manager to discover new alternatives, with unexpected results in solving decision problems. In this approach the executive must prove not only analytical thinking, but also imaginative and creative one.

7. Brainstorming technique is probably the best creative technique used until now. The basic idea is to improve the analysis of problems by finding as many viable solutions as possible and some unusual approaches.

8. Summary (syntetics) starts from the fundamental assumption that creative ability can be described and taught. Its aim is to increase the quality of the creative results by appointing a synthetic team. This technique uses mechanisms of personal analogy, direct analogy, symbolic analogy and fancy analogy.

9. Battele-Bildmappen-Brainwriting combines elements of the above techniques resulting in a brainwriting approach, meaning each person writes their ideas stimulated by images.

There are two essential methods used in this approach: the method focused on issues and the method focused on opportunities.

10. Problem oriented method

This method focuses on examining the environment to explore future issues that will have impact on the organization. Stages of method execution are described below.

1. Generation - requires addressing important issues for the organization. The analysis is forward-looking in the search of future problems, then it is backward-looking as it is necessary to evaluate the cause-effect relationships for each problem.
2. Assessment - examines the issue in terms of managers' interest. Cost-benefit analysis can be performed to determine the impact of the solution on the financial aspects of the organization.
3. Validation - at this stage issues that deserve the managers' attention have already been selected. Executives meet to validate them and to determine the order in which these selected issues need to be resolved.
4. Setting limits - the scope for each problem is set.
5. Setting solutions - can be achieved in two ways: finding the optimal solution through a quantitative approach or decision-centered approach. The choice is made depending on the type of problem to be solved.
6. Implementation - putting the solution into practice

Opportunity oriented method

The main emphasis is laid on identifying opportunities for the organization. The steps are:

1. Exploration - consists in identifying problems and opportunities to improve business operations.
2. Selection - once opportunities have been identified, it must be determined which of them should be explored by top management. These should constitute critical factors for success in business, and they can be analyzed by using cost-benefit analysis.
3. Consideration of borders - entails observing the environment to identify opportunities that may emerge and establishing appropriate boundaries for the development and implementation of the solution.
4. Solutions - management must choose the best opportunity in a set of feasible opportunities.
5. Implementation - the chosen opportunity must be monitored and implemented making any necessary adjustments.

In conclusion, in the process of solving problems, managers must be able to solve any problem, both short and long term (micro or reactive approach). In the process of finding the problem, the manager must solve by perception halfstructured or unstructured problems, in general, long-term (macro or proactive approach). Decision making is based on information. Information is needed to define and structure the problem, to explore and choose from alternative solutions and to review the effects produced by the implemented choice.

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