



STUDY ON THE TOPIC OF RESEARCH AND DEVELOPMENT

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ABSTRACT :

This bibliography consists of approximately 3000 references to articles, conference papers, reports and books concerned with management of technological innovation and in particular the management of research and development in industrial and government laboratories. These references have been drawn from many journals, three of the most important being IEEE Transactions on Engineering Management, R&D Management, and Research Management. Another major journal which is concerned with R&D management in the university and non-profit setting is the Journal of the Society of Research Administrators and some articles in this area are included. Because R&D is usually part of the larger process of technological innovation, a limited number of references have been included in areas such as technology assessment, entrepreneurship, patenting and technology transfer. Readers interested in pursuing these topics should consult, for example, the journals Research Policy, Technological Forecasting and Social Change.

Introduction:

Research and development history is as much the first invention of human instruments but more attention to research and development began with the increasing demand for diverse products and services after the industrial revolution in the years 1760 to 1830 and at the peak of the digital information and communications and digital revolution. In the 1960s, R & D meant that today R & D became widespread and in some companies it was considered a separate unit. According to the UNESCO World Organization R & D is a dynamic and interconnected process of basic research applied research and development research, in which the scientific results of each phase are gathered as a reserve of knowledge over time. These reserves are important inputs that are the source of new ideas and inventions for the operational phase for example technical and technological knowledge in applied research through the integration of the results of basic research and knowledge reserves in the applied research phase into one. The process is achieved. Investing in research and development has become a major contributor to developed countries. In these countries, when allocating funds, research and development are priorities. Today, countries can enter the international arena, which is constantly seeking new technologies and innovations, with active research and development centers in line with the new world standards.

Research Methodology:

The research method is considered to be the logic of the research; that is, as the logic gives rules for correct thinking, the research methodology also provides rules for correct research. The method in the research is to provide skills and experiences that make it easier and more practical to achieve the goal, and results in more results with less time. This point applies to all methods. That is, everything based on "methods" derived from the experiences and successes will be guaranteed more to benefit from it, and the "people with the method" will be more successful, and beginners who are familiar with the method of successful people will come to an early conclusion. The Iranian Anthropology House wrote about the research methodology that: Theoretical research method helps to strengthen scientific virtue (honesty) and create the accuracy and order in the student in terms of education, and introduces this lesson to the concepts and methods necessary for research.

Steps to study the research method:

1. Facing the learner with the problem: Each research usually begins with the problem to be solved, the question to be answered or the decision to be made.
2. Student's Guide to Explaining the Purpose: In this section, the teacher directs the student to express clearly and clearly his intention to do research for others.
3. Helping the learner to identify variables: Students need to identify variables to answer the research question. As its name implies, the variable of any phenomenon is visible or tangible or measurable and effective, which may change or change.
4. Helping the student to predict the answer or discover the relationships between variables and hypothesis: When the variables are selected, a testable hypothesis can be expressed. The hypothesis is the prediction of relationships between variables.

5. Encouraging the student to gather information: At this stage, the teacher teaches students that in any research to judge the evidence to be correct in order to arrive at the 12 correct or incorrect answer. Information can be obtained from a decent picture, much easier than oral or written messages.
6. Help the student to organize information: In the research process, one of the most important skills is the ability of a table and the recording of data and data; only when a good table is organized and adjusted to make the pattern and process of information clear and reveal.
7. Helping the learner to deliver results and suggestions: At the final stage of the research, the student, with the help of his teacher, explains the relationship between the variables during the experiment or the description of the findings, in other words, to determine The truth or falsehood of the hypothesis, compares the findings and the research hypothesis.

The research characteristics can be summarized as follows:

- 1) Each research seeks to solve a problem and answer one or more questions.
- 2) Research is far superior to information retrieval or simple collection.
- 3) The research is a multi-stage process that involves various stages, such as questioning, hypothesis formulation and hypothesis testing.
- 4) Research needs expertise, and anyone can study in any field.
- 5) The purpose of the research is to discover new facts and produce new knowledge (that is, to seek answers to unresolved issues)
- 6) Performing research requires accuracy, effort, patience and great pleasure.
- 7) Research in various sciences is carried out in order to achieve general rules (theory or theory) that can help predict future events.

What is research and development?

The term "research and development" or R & D, according to the Organization for Economic Co-operation and Development (OECD), which consists of the 30 advanced countries in the world, means constructive activities It is based on a systematic foundation aimed at increasing human knowledge and social culture and making use of this knowledge in new applications. Today, the development and design of new products is becoming more and more important as the company's main and final factor.

Research and development methodology:

Doing research and development does not necessarily mean that it is a pioneer in product technology and basically many organizations do not seek such a risky strategy. Some organizations with strong technological capability and strong financial management capability are moving forward in the R & D strategy to develop a new product and take advantage of environmental opportunities. The aggressive strategy needs to benefit from the wide range of capabilities and capabilities that many organizations cannot afford. Therefore, many companies are developing and defining a strategy to develop a defensive strategy. These companies are more capable of marketing and manufacturing than research and development. The defense strategy has a lower risk and cost, but it is technically not feasible. The success of a defensive strategy depends on the high capability in reverse engineering and copying processes. Organizations that follow this strategy should be able to quickly process this process in order to achieve their desired share of the market. The advent of revolutionary innovations, patents and copyrights are barriers to adopting this strategy.

Result:

In order to determine the proper structure of the research and development unit in the factories, it is necessary to first consider the main tasks and missions of this unit at the factory. The most important role of the R & D unit in each production unit is its role as a technology production plant within the factories, which means that the technology in the unit is considered as a primary basis, and by carrying out research and development activities and in a two-way 32 exchange process with Other factors of production produce pre-existing goods and, ultimately, the production of superior goods leads to the creation of superior technology and more productivity than the factors of production.

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