

UNIFYING AND CREATIVE FUNCTION OF INFORMATION IN MANAGEMENT RESEARCH

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Abstract: *Information is very important in the managerial scientific research. It is outlined by the fact that, in our days, the managerial scientific investigations bear the footprint of scientific and technological progress which is carried out very quickly and influences deeply the management and scientific research organized in this area. In these conditions, the activity of scientific researchers becomes dynamic, with complex problems, for the solution of which it is necessary a high discernment, the capacity to clearly delimitate the objectives and conditions, the courage to give up to what is proved outdated. For this purpose, the scientific researchers use information, the unifying and creative function of which it is carried out by projected structuring and according to scientific rigours.*

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JEL Classification: *M12, I21, I25*

1. Structuring, interactions and integration

1.1. Information structuring

The information which underlies the management research is selected depending on criteria established by the laboratory management and scientific researchers and it is not its summative elements, but factors ordered in a structure which means weight and stabilization indices of interactions based on intercorrelations and factorial analysis (Râpeanu, Gh., Rădulescu, M. S., 1997).

In the practice of managerial scientific investigations, the problem is much more difficult than how it is presented at first sight and how it is

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presented in many laboratory experiences, where a part of conditions are more artificial than the reality from enterprise. Thus, while in the laboratory the person acts in conditions much more different than the real-working ones, in the psychosocial context of the enterprise, he/she is in most cases warned, guided, stopped or even prevented by his/her superior or co-workers, by laws, internal regulations, instructions, traditions at the level of industrial branch or enterprise, etc.

On the other hand, the modelling of structures cannot be carried out only based on simple past experience (successful models from the past) and not depending on potential mathematical relations, no matter how spectacular they are.

With respect to those above, different evaluation scales (compared to the present and perspective criteria) intervene in establishing the structures in the managerial scientific research, which, combined with the mathematical order of component factors and their interrelation, may lead the scientific researcher to dynamic structures. Information is needed in this process. The amount of optimum information must be the starting point of ideas.

1.2. Interactions in the relation between information system – management research

Nowadays, the scientific researchers, leaders of companies and other specialists in the field pay special attention not only to the attraction, self-creation and management of financial, material and human resources, but also to information. The rapid pace of the occurrence of new information, of new qualifications and activity domains, which become more and more specialized and interconnected, leads to the need of the professional adaptation to new knowledge and competences (Dragomir, C., 2006). It is insisted to identify the sources of information and the place where they are clustered and especially the most important information. It is acted in order to carry out an adaptation as complete as possible to the information requirements of their storage and transmission. The need of information lead to the development of an impressive industry, that of information technologies: computer, cable television, copiers, faxes, video-cameras, video-recorders, compact disks, etc. Many companies have specialized departments of managerial investigation, with modern management information systems, which allows them to provide the management a sufficient and necessary volume of information about demand,

clients, competition, intermediaries and other factors that act at the market level (Richelle, M., 1995).

The information, considered by tradition a useful element in adopting decisions, is a real management value which can provide its holder significant competitive advantage (Marion Harper Jr., 1981). It was reached the stage in which the world suffers a “mega-transition” process from an industrial economy to an economy based on information (John Naisbit, 1984). Many companies analyze in the present the needs of information of their managers, designing information systems that satisfy them. The information system of management research is made of persons, equipment and on time collection, selection, analysis, evaluation and distribution procedures of accurate information, necessary for managers and scientific researchers in management.

The management information system for supporting management research is able to generate, store and provide information continuously to scientific investigators in the field. The scientific researchers coordinate periodically the studies which identify the attitudes and motivations for each managerial process and phenomenon. In this way, the information is assistance factor for the identification, selection and solution of management problems. The aim is to identify on time the modifications occurred in the perception or attitudes of scientific researchers. Reaching these objectives requires significant managerial effort. However, once initiated and functional, the management information system can only be efficient.

1.3. Information integration in management research

The specialization of scientific researchers is the basis of success and efficiency in management research. Nowadays, it became a reality which proves its virtues.

Specialization involves the management of an extended field of knowledge which allows the full knowledge of the managerial phenomenon or process. Mainly, the problem raised is to understand each managerial case and to locate it in its entirety, in the context of its real relation with the other managerial phenomena (Zamfir, C., 1987).

Understanding in the activity of scientific researchers raises a few problems which will be mentioned further. With its help, the scientific researcher emphasizes the essential in the processes and phenomena of managerial reality and its environment. Understanding contributes to the discovery of objective causes of managerial actions, their reasons, attributed

meaning and their economical and social importance. Understanding is an important component of the thinking process of the scientific researcher. It consists in relevant emphasis of essential relations from managerial phenomena, having the meaning of cognitive emphases and reflections.

Specialization, and understanding in this framework, requires permanent current general scientific information. The managerial scientific research, in current conditions, is a complex investigation. Generally, understanding and especially, understanding of real causality, imply the approach of different managerial phenomena or processes by scientific researcher and if necessary by the concentric forces of a group of researchers.

In the complex process of managerial scientific research, information is an efficient way of the real understanding of the entire problem of the subject which is the object of investigation. It provides retrospective and current data on the subject, namely what was carried out in relation to the object of research and which are the actual preoccupations in that field. In this way, the information integration in managerial scientific research and implicitly of the scientific researcher in the general management science is ensured, which outlines the creative function of information.

2. Computer science and information transfer in the management research activity

The notion of information is fundamental for the managerial scientific research. Computer science implies the application of science, management science principles in the field of information transfer.

Computer science, through its object, documentary computer science, as it was called by Virgil Stancovici (1970), aims the quick and efficient information transfer, in our case managerial, scientific, technical, economic and psychosocial.

Just like other fields of scientific investigation, the management research gives computer science an important role, generated by actional directions and its potential effects. For this purpose, it is necessary to pay attention to the study and solution of all problems starting from the creation of primary information until its reception by the scientific research. It implies the processing phases, secondary information, systematization, codification, storage, search, retrieval, etc.

The optimum organization of information activity occupies an important place in the practice of management research. The essential problem refers to

how many information are necessary for knowing and treating a certain managerial phenomenon or process. There are scientific researchers, who require exhaustive information, but in reality such requests are not necessary and their fulfilment is impossible in practice. The quick, efficient, accurate, useful information implies the corresponding optimization of information and it is an argument against requests of exhaustive information. It is necessary that the coordination, conceived not only as administrative management but also methodological distribution of information tasks, provides the necessary balance in matters of information for covering the fields to be investigated. For this purpose, it is recommended to use secondary information instruments (secondary information, essay and synthesis magazines) which signal the primary scientific literature.

3. Primary and secondary information in management research

3.1. A few preliminary notions

In scientific investigations, in general, and management research, especially, the selection and definition of preliminary notions are very difficult preoccupations. The meaning of the activity as such is given by the fact that all analyses and judgements, construction of conceptual basis and potential conclusions depend on them. With respect to the field of our preoccupations, we will first analyze the notion of scientific information.

With respect to the development of mathematical information theory, cybernetics and management researches and following the development of managerial theory, the term of information acquired a complex meaning, which makes difficult its use. On one hand, some persons, without referring to a strict definition, use the intuitive presentation of the term. On the other hand, there are many special definitions: “structure of cybernetic system designed precisely, accompanied by the influences it generates” or “data transmitted orally, in writing or by any other means by certain persons to other persons and also the process itself of these data transmission or reception” (Răboacă, Gh., Ciucur, D., 1999).

The scientific information is a sub-system of phenomena system, which belongs to the notion of information. The difference between the two notions is outlined by the fact that the scientific information, as information which circulates in science, influences its development, selection and adoption of decisions concerning scientific investigations, it is used in the theory of

scientific facts, notions and methods. However, we think that such definition is too broad and consequently dissatisfactory, because in reality, in the decision elaboration activity in matters of scientific investigation and even in the entire scientific research process, different factors or information outside the sphere of science can influence or even participate, for example, utility, financial, political information, information about the economic condition and others. Consequently, we define scientific information as those information, data, which reflect the science laws and also facts and methods used by these or which are present in the formulations of scientific problems and tasks, namely that information which functions, is kept and develops in managerial reality, which is directly or indirectly intended to formulate science laws and theories and contributes to their definition, verification and use for practical purposes.

Another notion which requires certain specifications refers to the form of fixing the scientific information. The problem raised is related to the fact that the managerial scientific information circulates in oral or written form. It is known that the verbal and written unofficial information has certain significance in the formulation of scientific ideas and descriptions. In our vision, in relation to the purposes and missions we targeted, we will only refer to the information found in special scientific texts and which we will hereinafter call primary scientific information.

With respect to the secondary scientific information, a few mentions are necessary. Verbal and written unofficial communications cannot be the object of this form of information. As such, we will keep in mind that only those units of primary scientific information are the object of secondary scientific information, which are found in scientific texts, recognized as scientific in certain professional scientific groups and disseminated on information channels with official access.

Concerning the primary scientific information, we will keep in mind the following definitional components (Simon, H. A., 1960):

- information, units of knowledge which meet the scientific criterion and are especially recognized as scientific information, obtained based on scientific information sources by the members of the scientific research laboratory;
- they are represented as scientific laws, theory, description of methods, scientific facts and are used for processing or for practical purposes;
- they appear in official written texts and they are mainly accessible to all scientists and specialists from that field;

- they are disseminated on special information channels.

In its turn, the secondary scientific information meets also the requirements presented above but it is different from the primary scientific information because its investigation object does not directly concern the external world, in our case the managerial reality, but it refers to the primary scientific information. The appearance of the secondary scientific information is conditioned both historically and socially by the development of the primary scientific information. The gnoseological and social feature of primary scientific information is also characterized by it, for the understanding of which it is necessary to firstly analyze the characteristic features of the primary scientific information, concretely: the particularities of its functioning and development; problems and missions that generate the secondary scientific information as necessary result of the development and conditioning of primary scientific information (Shaughnessy, J. O., 1976).

3.2. Secondary scientific information and general dynamics of management research

Concretely, we intend to treat the problems and tasks which caused the appearance, development and independent formation of secondary scientific information institution.

It is necessary to outline from the beginning that the notions of “primary” and “secondary” attached to scientific information determine not only the significant gnoseological differences but also the different moments in the science dynamics, namely of management science. They outline that the science as an assembly of methods and theories, problems and empirical facts included in a unitary paradigm based on general fundamental ideas can exist and existed until the appearance of secondary scientific information and independent of this. This simple finding of historical pre-existence cannot be sufficient for understanding the interrelation specificity of the primary scientific information with the secondary one. As such, the essential moments of the dynamics of these interrelations must be outlined. They can be formulated as follows (Shay, W. P., 1970):

- both primary scientific information and secondary one are not substantially different. According to their nature, they are identical, namely both cases involve information, knowledge fixed systematically in scientific texts;

- they are similar in many respects and the laws governing the development of primary and secondary scientific information systems, as meaning that they are sooner or later formulated institutionally and are developed according to similar exponential curves;
- starting with a certain historical stage, the science, representing a primary scientific information system, can no longer function and develop without the presence of secondary scientific information.

The points mentioned above can be only understood within the general science genesis and which lead to the necessity of secondary scientific information. A few questions are raised in relation to this (Rees, W. D., 1996):

- which are the factors that determined that appearance of secondary scientific information and scientific information activity?
- which are the specific features of contemporary science, which generated this activity and made it necessary?
- which are the gnoseological and social functions of secondary scientific information?

Answering these questions, we will start by outlining that even toward the end of the 40s of last century it became clear that the number of scientific publications was so high that the scientists could no longer read new literature during the time. Since then, the situation not only it did not improve, but it became so worse that measures for getting out of this critical situation were necessary to be adopted. The alarm signal was pulled in the last century toward the end of the 60s. Then, the production of scientific literature reached 150 thousands of pages/day and the annual one reached 45-50 million pages. The National Academy of Sciences from USA forecasted around 2 million papers per year or 6-7 thousands of papers per day for the beginning of the 70s (Reiley, A., 1931).

The world of scientists was facing an almost inevitable crisis and the most radical measures were necessary for its eradication. The traditional means of disseminating scientific knowledge were abandoned. The exponential growth of the volume of scientific publications was taken into account, as a dynamic system of a special type. However, its development did not only consist in the production of information, but it also implied its appropriation as basis of future progress. The incapacity to completely and adequately process and appropriate information according to its numerical increase was called in that period “information crisis” or “publicistic explosion” (Robbins, St., Coulter, M., 1996).

The question arises as to if such situation could be qualified as state of crisis. As a rule, each state of crisis must end through a transition to state free of crisis or development type. In the given case, this meant the categorical slowdown of the scientific knowledge production and consequently the slowdown of social, technical and scientific progress.

But this vision was not accepted. It was considered that the phenomenon called “information explosion” or “information crisis” must be treated differently and namely as newly qualitative stage in the development of science and scientific publications, characterized by the following features (Roesbuck, C., 1966):

- the science influence as driving force of technical and scientific progress on all sides of social life increases along with the accumulation of scientific knowledge, which, in their entirety, increase according to the exponential law;
- the continuous development of science and use of results in production, defence, social activity and management is possible only in the conditions of complete appropriation in each stage of the entire primary accumulated information;
- this feature is not possible based on traditional methods, namely publications, broadcasting, transmission and maintenance of information holders. As such, the system – secondary scientific information is formed, which has the following advantages, by exercising its functions (Stăncescu, I., 1971):
 - it liquidates the so-called crisis of primary scientific information and transforms the exponential curves in linear ones;
 - it becomes an important conditions and a premise of scientific knowledge production in the contemporary stage of science development;
 - it provides the possibility to scientists, professors, engineers to be informed about the recent scientific achievements not only in their field of preoccupations but also in border scientific fields;
 - it allows the transmission of scientific achievements in a simple way to the components of higher education system, which prepare new science professors;

- it creates the conditions for the optimum cooperation between scientific groups, even if they are differentiated by the professional and socio-cultural barrier.

The functions to which we referred above determine the social meaning of secondary scientific information, to an extent important and special than that of primary scientific information.

Now, the brief presentation of transmission forms of secondary scientific information, as type of scientific activity which distinguishes it significantly from the primary scientific information.

The secondary scientific information, as special social phenomenon, appeared following the science development and especially communicational state, managed to create constitutional forms of the secondary scientific information, which were finally transformed in information-scientific centres, information institutes, specialized publishing houses, training and improvement institutes of specialists in this field (Stăncioiu, I., Militaru, Gh., 1998).

In time, in relation to the fact that it has certain differentiation elements from the basis of primary scientific information, the secondary scientific information requested specific institutionalization.

Understanding the specificity of scientific-information activity implies the emphasis of the gnoseological and sociological statute specificity (Stogdill, R. M., 1967).

Referring to the gnoseological aspects of the problem of secondary scientific information, we discover essential transformations in the structure of scientific knowledge. The experiment, generalization, theoretical investigation, practical verification, just like before, form the basic stages and components of scientific knowledge, the main elements of scientific activity. At the first level, the physicians, chemists, biologists, economists, psychologists, sociologists study certain objects and processes and fix the results of investigations in scientific texts. At the second level, the specialists in the field of scientific information study these texts, compare, classify, codify, process, appreciate the scientific value, compress, raise the information space of secondary texts presenting the consumer the most essential and necessary moments from primary sources. The specificity of secondary scientific information activity consists in the fact that it is preoccupied to give not only information about these texts, but also about the objects and processes reflected in these texts.

The product of scientific information activity is also the texts: essays, magazines of essays, scientific-analytical magazines, collections of

information. There are also other information systems that supplement the types of secondary information.

In this way, the secondary texts have a double role (Banciu, D., 1997):

- they present condensed information about primary scientific texts, meaning that it appears as replacer and bearer of information at the same time about the main objects of investigation;
- in order for the secondary scientific information to be able to present adequately the knowledge about objects, laws and properties reflected in primary scientific documents, it is necessary to analyze these texts and the relations between them. The terminology, conceptual apparatus and types of data must be reviewed, the essential must be identified, the information, news credibility must be emphasized and so on.

All these operations are specific to the secondary information activity and form its cognitive structure. The new cognitive structure imposes certain social and psychosocial conditions which involve a new labour division, including scientists of two categories (Baron, T., 1996):

- those who create primary texts and carry out everything necessary for this activity;
- those who carry out the scientific information processing of primary texts and all necessary activities for this procedure and operation.

This time, the scientific information appears not only as a means intended to a certain extent to liquidate the deficiencies of information abundance era, but also as field of scientific activity able more and more to assume its regulating function. The results of secondary scientific activity, able to provide the most operative information concerning the state, value, tendencies of scientific investigations, exercise a certain influence on the character and content of scientific research.

Conclusions

Management can be ensured in adequate conditions only based on knowing the way in which the entire managerial process is carried out. This knowledge is provided by managerial information. The information received appropriated and adopted conditions the human behaviour. The information is considered a resource which must be investigated from theoretical and scientific points of view in the context of complex society. Such approach, difficult and complicated, is used in management research, in the activity of

scientific researchers. The applications in this respect are numerous because the information meanings are also numerous. In this context, the information market appeared and developed, with many models and forms of manifestation. The possibilities of their use are incommensurable but their use requires experience and training.

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