ASPECTS OF INNOVATIVE PROCESS ON CREATIVE PROBLEM SOLVING

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Abstract. Article highlights the need to adapt motivation and management style in the innovative process. The need to evaluate and adapt management style and motivation involved in the definition of enterprise for sustainable development, that production and products to the principles of zero-loss and zero pollutant emissions. Adapting motivation and management style follows highlighting possibilities of correlation between innovative process- motivation system-system management style. In the current context of globalization the innovative solutions are the result of analyzes for several types of contradictions, leading to acceptable compromises for producers in relation with user’s expectations → the products must have at least three of the four main base features: fast-cheap-good-clean. The present work spotlights the necessity of designing of the motivation system into the organisation framework, as well as the adaption of the management style in the creative settlement of the problems, in order for the motivation system and management style to become stimulating factors of the creativity and not blocking barriers for the creative processes. Conclusions promote the idea that stimulating innovation through the motivation and the appropriateness of management style is an effective way to increase the capacity to create and achieve new products with market demand.

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1. INTRODUCTION

Products innovation strategy is enterprises lasting development strategy component. The need to evaluate and adapt management style and motivation involved in the definition of enterprise for sustainable development, that production and products to the principles of zero-loss and zero pollutant emissions.

This way, the motivation system and the management style are expected to become stimulating factors of creativity and not barriers that could lead to creative processes blockages. In all phases of the motivation system design in the organization, the management plays an important role.

Change implementation stimulation, orientation of chosen solutions towards a model, as well as changed attitudes absorption, depend on the management style influenced by existing human resources, tasks’ level and diversity, cooperation types in the organization, organization as an open system /6/. An innovative process performance assumes innovative techniques use that involve a transparent climate, adequate management style, motivation systems that surpass the barriers of change implementation, adequate organizational culture, resources and competences.

Creative settlement of the problems supposes the utilisation of innovative techniques based on the following aspects:
- transparent climate;
- management adequate style;
- motivation systems favourable to change;
- adequate organisational culture;
- resources and competences.

Creative settlement of problems is achieved by teams that deal with creative functions of explorer, artist, judge and fighter.

These parts have to be built and ensured by the organisation management for the achievement of innovative processes. Managers will be this way placed in organisational system based on a new philosophy and producing actions of creative type, by normal evolution towards structures of net type, auto-adjustable and auto-governable /2/.

Creative problem solving is done by teams which assume the four creative roles (explorer,
artist, judge, and fighter). All four roles must be assured in the innovative processes.

Management globalization implies the necessity of managers working in organization-networks systems that makes the emphasis being put on the aptitude of combining as many different management styles, if possible on all of them – the ideal leader /11/.

Adapting motivation and management style follows highlighting innovative possibilities of correlation between the innovation process - motivation system - management style. Success in the innovative process is the result of analyzing the following elements:
- a- innovative process – motivation system – management style;
- b- SWOT analysis of the research team /4/;
- c- the equilibrium between the fast changing situations and consolidation and continuity periods for organizational structures adaptation through reorientation and reorganization.

The development of the evolutionist adaptability of organisational systems can be achieved by considering the motivating elements and management styles as stimulating factors of the creative processes. The correct evaluation and the adaption of the motivation and management style became already basic elements in providing efficient functioning of the organisations management, favouring the increase of the organisation capacity to produce the new combined with the useful, to stimulate the organisational and individual creativity in order to look for and to find new solutions for the complex problems.

2. NATIONAL SITUATION

At national level, thanks to property transfer, the new organizational structures do not have the necessary period for consolidation and continuity, changes’ situation being fast, reorienting processes are staying behind /1/.

This way, organizational structures’ orientation process towards innovative processes is taking place at a low speed. Often the management styles, motivation systems and innovative processes are not articulated.

The innovative process approach is not focused on all the creative problem’s solving specific aspects, resuming to this sort of interpretation:
- innovation → material result (path: research-concept-prototype-product);
- innovation →research.

Most of the times the management style is the one that creates the main obstacles in the way of the innovative process this way:
- the creative process is seen as a occasional necessary attitude and not as a constant mental disposition;
- the creative process is considered to be a RD’S prerogative and not a vital competence for the entire organizational system;
- the creative process is seen as depending only on the organizational factors and not on the personal capacity of everyone for overcoming pre-established models.

3. SITUATION INTERNATIONALLY

At international level a new approach of the innovative process prevails, the emphasis is on the motivation system and on management style adaptation for organizational structures orientation towards creative problem solving. This way the innovative process in the EU has a special approach /3/:
- innovation → all the specific aspects for the creative solving process of complex business, technique, cultural, processes, infrastructure problems;
- innovation → social dialogue for relationship networks creation between the involved parts.

The innovative process implies a series of mandatory elements that must be taken in consideration by the organizational structures that want to improve their performances /12/, (fig.1.).

In Canada, USA and Australia the innovative process is seen as a general model based on four phases /10/, (fig.2).

Fig. 1. Mandatory elements implied by the innovative process
In Germany, by The Digital Auto Project program, the diminishing with 50% of the product development time is proposed. The project is based on three working principles: increase of the simultaneity of the designing charges; elimination of certain designing charges, as the physical prototype; more rapid completion of the remaining project.

In the USA, at the basis of the product development stands the idea that only by the way of choice shortening the designing, building and manufacture processes can be fundamentally changed. Simultaneity designing/study leaded to the reduction of the personnel with 25% and implicitly, to the costs diminution.

In France, the accent is put on the methods that lead to the best solutions of materials for the new products, so that a recycling ratio of 95% could be provided, by choosing plastic materials. At the whole world level, the tendency is to utilize the multidiscipline design optimising, a design technique of the complex systems and of sub-systems exploiting the synergy of mutual interaction of the phenomenon.

The manager is a responsible person in a multidimensional environment (networks) with the aptitudes of combining various management styles.

The emphasis is on the following managerial features:
- predisposition for creating interpersonal relationships and vocational aptitudes (the ability of creating a vision, creativeness, innovation, ability of hearing and speaking);
- organizational culture and values system adaptation regarding task accomplishment;
- the capacity of objectives defining having an open attitude directed towards innovative solutions finding and outlining the implementation of human intellectual and creative potential possibilities of all employees.

The lasting development designates conceptually the characteristics of an economical system that satisfies the present generation needs without diminishing the chances of the next generation to satisfy their needs. In order to be successful in a lasting economy, the enterprise would have to act in the following directions:
- Selection of the ecological raw and auxiliary materials and energy sources;
- Utilisation of the materials and energy based on the principles zero losses and zero polluting emissions;
- Diminishing the losses and polluting emissions;
- Integration into the economical system through suppliers and clients;
- Integration in the social-economical system by the access to relevant information regarding the available products and resources;
- Reference of the economical aspects more to values than to profit;
- Integration in the ecological system by the possibility of reprocessing without negative consequences of all discarded substances that get out from the enterprise.

The strategy of products innovation determines the lasting development strategy of the enterprises. The lasting development places to the producer the responsibility of products recycling in order to provide a non-polluting environment. The study of the design directions and strategies, as well as the optimization of the multidiscipline design, lead to the costs reducing by diminishing of the product weight, first of all. Parts and components of small dimensions lead to the creation of products with a smaller weight, diminution of the polluting emissions and reduced fuel consumption.

4. TRENDS IN THE CLASSIFICATION SYSTEM OF MOTIVATION AND MANAGEMENT STYLE IN THE INNOVATIVE PROCESS

Drafted in the context of sustainable development, the system of motivation and management style have an important role in the innovative process. Globalization and the transition to knowledge-based economy implies a unified approach the following aspects /9,11,13/:
- equilibrium disposition between the rapid changes and the consolidation and continuity alternative periods generated by the innovative process;
- diversification of tools for generating ideas, of evolutionary process release that have in sight provocation (usual judgments stimulation leaving by new approaches) and progress (new ideas, solutions searching outside the normal work environment);
- motivation and management style considering as stimulating factors of the innovative process according to the innovation paradigm= doing things better (fig.3).

the innovative solutions are the result of analyzes for several types of contradictions, leading to acceptable compromises for producers in relation with user’s expectations → the products must have at least three of the four main base features: fast-cheap-good-clean /5,8/;
-methodological system is perceived as an articulated whole, with the following route: problem abstracting-standard problem conceiving-solving instruments selection-standard solutions-inventiveness through standard solution application to specific problem and own innovative solution building (fig.4)

-motivation instruments prevailed are persuasion and stimulation, motivation and mental hygiene being the main indicators that generate personnel’s satisfaction /7/ (fig.5).

The creative problems settlement can be approached as an adapted, systemic and structured model of contradictions settlement, built on formal-abstract bases and which permits the transcription of the specific problem in a general context, while its instruments offers the possibility of finding and implementation of a general solution, at its turn transposable to the specific problem (fig.6).

The most utilised general instrument for the systematic settlement of technical-economical problems is represented by the contradictions matrix. This matrix, by construction, orientates the user toward the most utilized innovation principles for each identified contradiction.
Evaluation of motivation and management style is present in a new approach based on correlation between innovative process-motivation system-management style, correlation that should lead to creative problem solving, and the motivation and management style to become stimulating factors for the creative process. The complexity of the problem in general comes from the fact that the new interpretation of the innovative process approaches many aspects taken in consideration by the creative solving problem /fig.7/.

Analysis of the influence of motivation and management style in the innovative process and organizational structure is complex relief of these issues:
- positive and negative influences of procedural intrinsic and extrinsic motivation on innovation strategy organizational structure;
- approach influence specificity domain (industry, construction, agriculture) on business-innovation-performance relationship;
- need to continuously improve the efficiency evaluation of the innovation process by resizing the number and position of output indicators in relation to the entry.

Besides a bigger efficiency of the ecologically designed products, these ones present a bigger security level, they are more liable and of a better quality. Generally it is affirmed that the environment strategies are lavish but, in many cases, eco-design leads to economies. With this meaning the materials consumption and waste reduction during the products manufacture process with reduced energy consumption represents direct benefits for the manufacturers, without mentioning the reduction of intern risk and employees motivation. Application of an eco-design strategy means therefore the development of innovation product with high efficiency leading to a pro-active approach, on the way of legal conformity.

The big companies request to the suppliers at least the utilization of some minimum environment management principles. With this meaning the companies ask for details concerning the used materials, going from substances checking lists to complete declarations concerning the materials. Consequently, to be considered a “green” producer is an argument to be chosen as supplier. Furthermore, the suppliers have to comply with the exigencies imposed by the total quality principle, that supposes: personnel periodical attestation; analysis laboratories accreditation; accepted technical level for the installations of treatment of the products out of use; high standards for the depolluting, storage, collection, recovery, reutilisation and recycling operations.

5. CONCLUSIONS
Stimulating innovation through the motivation and the appropriateness of management style is an effective way to increase the capacity to create and achieve new products with market demand. In terms of fierce confrontation between the idea of profit and additional costs resulting from sustainable development, motivation and management style have a special role in the innovative process. Issues relating to the classification system of motivation and management style in the innovative process traced these lines of action:
- extended analysis of the innovation capacity of each organization with respect to the creation, adoption and exploitation of innovation with specific techniques (hybrid technique AWOT used for comparison between different policy makers about innovation);
- large scale implementation of new methods of work organization and routine procedures creative - innovative philosophy starting from the process innovation is a complex non-linear;
- effect of innovation on economic performance measure to include in the system of indicators of
output sizes and considering their characteristic as a second layer of output indicators;
- innovative process is a lever of economic growth due to the orientation of decisions to strengthen the capacity of creation in relation to the production, issue necessary to transition to knowledge economy;
- effective analysis of the costs incurred by innovation will be achieved through a comparative analysis between the return on investment in innovative organizational return on investment and innovative interorganizational level.

In order to innovate, the organisations have to provide concomitantly a climate characterised by the balance between the continuity and discontinuity, between consolidation, development and change. They have even to be reinvented in the meaning of consolidation of the capacity of evaluating instead of that of performing.

In the phases of designing of the motivation system into the framework of the organisation, management is a decisive factor. Encouragement of the adaption to change, orientation of the chosen solutions to a viable model, as well as the favouring of changed attitudes, depend on the management style that is influenced by the existing human resources, the tasks level and diversity, cooperation types of the organization, organisation as open system.

Correct evaluation and adaption of de motivating system and management style contribute to the increase of the economical performances of the organisational/enterprises systems by the orientation towards the cohesion ideas-processes-facilities-capital-product distribution, cohesion that will ensure the economical increase of the enterprise by the promotion of innovative solutions.

References: