ADVANCED INSTRUMENTS AND TECHNIQUES FOR EVALUATION AND MONITORING ECONOMICAL AND FINANCIAL INDICATORS FOR INDUSTRIAL SECTORS OF MECHATRONICS, ROBOTICS AND INTEGRONICS

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Abstract – The paper treats scientific techniques and advanced tools for evaluation and monitoring of economic and financial indicators for Mechatronics, Robotics and Integronics industrial sectors, with the view to their positioning in the system compared to national and European level, for objective sustaining of sustainable development and globalization strategies.

Key words – advanced instruments and techniques, economical and financial indicators

1. Introduction

For evaluation and monitoring of industrial sectors Mechatronics, Robotics and Integronics, in terms of economic - financial, the economic indicators are used for characterization and measurement of financial value, which render quality, intensity and efficiency of productive economic activities in industry companies.

In synthesis, the productivity is enounced and expressed both as a source of economic growth and quality standard and as economic form which measures the effect of economic activities and content of economic efficiency while ensuring intensity of own contribution to the product value.

Productivity and quality are designed at high level, through improvements at managerial level, by building a culture and discipline of work by company orientation towards the beneficiary and to meet the customers’ needs, through the planned management activities and knowledge management principles, by targeting KAIZEN to human resources, etc.

2. Description of techniques and instruments and advanced instruments of evaluation and economical and financial monitoring

The advanced technique expressed through cause-effect diagram, respectively Ishikawa, highlights the action of favorable of unfavorable factors in graphical shape, early at the beginning of technological flow, until achieving and selling of the product.

By this technique, are identified both on sales productivity and value-added and capital productivity.

Other new indicators can be identified as product profitability, use of assets, the degree of activators of profits, quality of product design, quality of materials used, the average contribution to sales and contribution of fixed costs and real costs, along with measurement of capacity utilization, break-even, continuous link between production and sales, utilization of sales and capacity production, degree of automation, utilization of technological equipment and capacity utilization efficiency.

For application of methods to improve productivity and quality is used the Shewart and Deming approach or PDCA cycle (Plan / Do / Check / Act) - planning, quantitative or dimensional implementation / execution, the results match expectations and action.

The added value contribute to obtain of product value and take into account the value of raw and processed materials, the wages / depreciation / interest on loans / dividends / tax / income reinvested / that is the total sales revenue minus cost of materials and services purchased.

The cost of quality and non - quality is difficult to determine because of intervention factors that determine the quality and determine the damage caused to the user plus the cost of remedying the defects and loss of image and customers.

Generic strategies are defined, in companies, by domination through costs, by differentiating through quality, by focusing on a specific niche and through diversification of products or services.

Technological watch is designed to maintain firm focus on technological developments in the market and the technologies used to achieve products.
Technological area of a firm is defined by a three-dimensional space marked by axes - potential for development activities, market position and technological position.

The success of the management strategy depends upon the quality of the management strategy, on the structure (network matrix), on the systems (information, communications, payroll, etc.), on staff qualifications, on quality management, on the management style and on the system of values.

The vertical merge strategy aims to diminish the influences of the factors that generate issues, with an amplification of the functions of the management and an inclusion of risks that include SWOT components of the integrated activities.

The technological potential of a firm is measured by the possibilities to extend and the range of technological applications.

The management feasibility is defined and takes into account the probabilistic concept of flawless functioning on a larger period than a certain interval, as well as the categories of nominal, provisional and operational feasibility.

The management performance benchmarks, improves communication between and inter-departmental, improves management know-how and technology, increasing moral and material motivation of staff moral and material, the practice of benchmarking's consistent, stimulating creativity through brainstorming management through the practice of the 5S and the 7S, practicing forms and flattened organizational structures and practicing management methods of production.

The mathematical modeling of decision problems methods synthesize methods for determining the optimal assortments program, as economic indicators say it, determining the optimal quantities in terms of indicators - cost, benefit, etc., setting limits in international negotiations, intelligent production schedule and size complex systems serving, calling on the analytical representation, algorithms, analytical mix sites - algorithmic, analytical - heuristics, algorithms - heuristic and statistical experiments.

The decision fundamenting is carried out through multi-criterial analysis, by ELECTRE – elimination et choix traduisent la realite, by decision trees and tables and other methods of substantiation in terms of risk and uncertainty.

3. Conclusions

The formulation and motivation techniques and advanced tools for assessment and monitoring of economic and financial indicators related to the industries of MECHATRONICS, ROBOTICS AND INTEGRONICĂ.

4. Selective references