

Model for Integrated Management of the Processes, Objectives, Risks and Performances

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Abstract: Organisation's subsistence and long-term sustained success in the conditions of international competitiveness and every day changes, depends on various key performances. Degree of accomplishing intended level of key performances depends on the processes management – of products or services (process results), objectives management – of strategic, tactical and operative, as well as, on performances management – of processes, products and services. While theoretical processes, as well as performances of processes, products or services are quite well defined, the problem is how to define to what the real objective strive. For example, in the ISO 9000:2005 standard, *quality objective is something sought, or aimed for, related to quality*, or in ISO 39000:2012 standard, *objective is result to be achieved, and performance is a measurable result*. Objectives are always oriented to some new performances of organization. Objectives and performances could mean activity, process or product, service or system or organization, in global. Obviously, result is the common denominator for all mentioned terms. In the realization of strategic, tactic and operative activities some risks can occur, which could influence their results. This requires risk management (ISO 31000:2009) process in combination with the all mentioned management aspects. The definition of risk itself has evolved from traditional to common one - *an effect of uncertainty on objectives*, and can be positive or negative, having the same aspects as objectives themselves. In this paper an original model of integrated management of the processes, objectives, risks and performances (IMPORP) is defined. It is proved to be practically management method for effective governing and managing of any organization.

Index Terms: *quality management, process, objective, risk, performance*

I. INTRODUCTION

Subsistence, especially sustainable organization success in the conditions of competitiveness and every day changes, does not depend only on one or few performances. It is necessary to continuously achieve acceptable level of all key performances of organization and its internal capabilities, according to stakeholders' requests. Degree of accomplishing intended level of key performances, from the methodological aspect, is the result of management process, in which products or organization's services are realized, and of management objectives whose effect should be increasing levels of processes themselves and their results, as well. This requires balanced guidance of the strategic and operative activities management. In the operative activities, as result of strategic activities, new process capabilities are integrated successively, and processes, products and services performances level is raised.

Process theorists have been wandering for a long time in terms of defining objectives. The problem was not so in the terms of measurability, predictability, challenging and feasibility of the objectives, or of their determinants of organisation level to which they are related (top level, individual functions, projects, products and processes), or in relation to time dimension (strategic, tactic and operative), as well. Actually, the problem has been always how to define place or point to which the objective strives. For example, quality objective is defined as: *'something sought or aimed for related to quality'* [6].

However, objectives have been always oriented to some new organisation performances. Intended levels of individual performances are required by these objectives, and then different methods for achieving these new levels are used. Within the framework of quality management an implicit relation between objectives and performances is established by their definitions. For example, in The Road Traffic Safety (RTS) management systems objective is defined as *'result to be achieved'*, and performance *'is measurable result'* [5]. In addition to that, performance, as well as objective could be related to activity, process, product, service, system or organisation, as a whole. On the other hand, product or service is defined as *'process result'* [6]. This is the way to reach terms of relations between processes, which realize products or services and performances, as measurable and accomplished results, and objectives that should be achieved. Obviously, result is common denominator for all mentioned terms.

Among realization of strategic activities and plans for achieving objectives, some risks can occur and influence their outcomes. The risks can occur in routine operative process activities, too, doesn't matter how well they are defined. This requires paying bigger attention to risk management, or to system management to maintain risk at the acceptable level, in combination with the all previously mentioned management aspects. The definition of risk itself evolved from traditional one that implies the risk as *'combination of an occurrence likelihood of a hazardous event or exposure(s)'* [8] to the general definition which implies the risk as *'an effect of uncertainty on objectives'* [4]. Therefore, according to new concept, effect of risk could be either positive or negative, which is

something new comparing to the traditional risk definition relating only to the negative results. New risk definition, like traditional one, is still related to potential events, as well as, to probability of their occurrences and consequences that they cause. Being related to the objectives, the risks have the same aspects as objectives themselves (i.e. national security, financial security, people's and health security, information security, food security, traffic security, environmental security etc.), and they could be applied to different levels or entities (i.e. strategic, functional, project, process or productive).

In the conditions of modern organisation guidance, management should make fast and high – quality decisions. The question is how to coordinate all mentioned components and to accomplish effective management, as well as how could help application of different standards for management systems in that. In this paper a model for integrated management of processes, objectives, risks and performances (IMPROP) is defined. In practice the model proved to be a good management tool for effective guidance and management of any organisation faced to all challenges [15].

II. MODEL FOR INTEGRATED MANAGEMENT OF THE PROCESSES, OBJECTIVES, RISKS AND PERFORMANCES

2.1 Process input requirement and objectives

Process organisation is the basic of modern management systems. It includes management, which leads organisation and manages its processes and resources in performances accomplishing. The processes are key factor of modern organisation and they consist of activities and tasks, related to each other in that way they occur logically and accurately without any mistake, and by using the least of resources. They transform customers' requirements at input into products or services at output, adding process values in routine, secure and standard way. The processes integrate the three main attributes of the job - *motivated and trained people, techniques and tools, and procedures and method* of tasks performing [16]. By standardisation and automation of processes and using information technologies, every organisation can establish its management system structure in such way to function practically without any mistake, safely, reliably and with customers' and other stakeholders' trust. It is possible to establish structure of management system by using process organisations in mentioned way. However, the question is how such management system would function in the practice, containing high level of dynamism, risk and fluctuation? Figure 1 shows a general structure of management system, which consists of management that identifies and coordinates objectives achievement and plan realization, as well as processes and resources that realize products or services at customers' request.

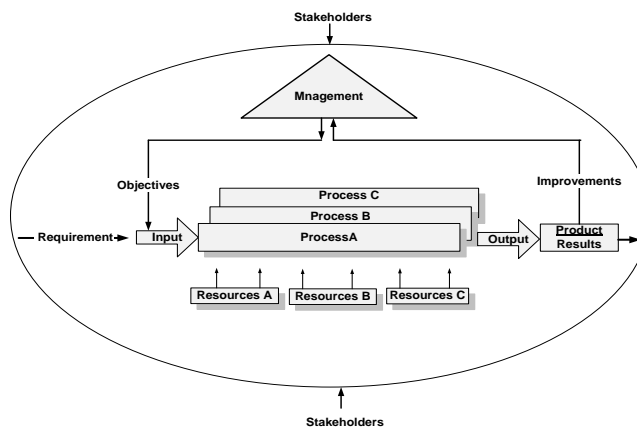


Figure 1: Management system general structure [10]

In order to be realized for a long term, first, it is necessary to define precisely input for every process. An input consists of either products or services requirements that customer defines in an order or agreement or some other type of purchase, and of objectives that management should define, as well. Identifying requirements is generally standardized and it includes: requirements specifies by a customer, requirements which a customer did not show, but which are necessary for specified or intended use, regulation and law requirements applied on product, and all additional requirements, which organization considers to be necessary [7]. Processing requirements and their converting to product or service is also regulated by the same standard, and it does not pose any problem. Figure 1 shows simplified key business processes for products/service realization, where process values are added straight way to the customer. In general, all processes in an organization could be classified in four basic types [10]:

1. Management processes
2. Business processes
3. Processes for support (including security processes), and
4. Innovation and improvement processes.

Establishing and processing objectives is more complicated problem than establishing and processing requirements. While requirements are oriented to present, at particular projects or products/services, the objectives are oriented to the future, intended results, new products/services, higher business performances, etc. The objectives are defined by management, based on the established vision, mission, and value, or organization policy. All of these strategic management components must be based on present and future expectations of all stakeholders – customers, owners – shareholders, employees, partners and society, as well as, on assessment of internal and external conditions.

In the 50's, Peter Drucker developed management by objectives (MBO) system [13], which attracted great attention. In spite of the fact that this method was not structured in detail, it defined objectives management concept and significantly influenced this approach to be applied at many organisations' management systems. At the beginning of 1990's this method was significantly adjusted and structured by development of today well known Balans Scorecard (BSC) method [14], used in many organizations with great success. Unlike traditional orientation at short-term profits and financial business perspective, the BSC includes the three additional categories of measuring from non – financial perspectives, such as: customers' satisfaction, internal business process, and learning and growth. Besides these business perspectives, the BSC includes four strategic processes for establishing relationship among strategic objectives and business performances, as well as twenty additional perspectives.

The authors developed an original IMPORP (Integrated Management of the Processes, Objectives, Risks and Performances) model and applied it in more than ten organizations, which already have been using the QMS according to the ISO 9001 standard [9]. This model consists of one process with ten unique aspects or objectives and performances perspectives. This model is proved to be applied in every organization [15].

2.2 Integrated management process of the objectives, risks and performances

Final result greatly depends on accuracy and integrity of defining objective coordinates. Therefore, it is very important to define comprehensively objective's coordinates and verify relationship between objective and risk to which it is exposed. Every objective must be determined by the three following basic dimensions [11]:

- *Performances dimension*, which represents intended level of result, usually shown through indicators;
- *Time dimension*, when an objective should be achieved, and
- *Aspects dimension* that shows stakeholders and capabilities or competition, which an objective refers to.

Intended result, which is denominator of every objective, most usually is not entirely accomplished, because of the risk factors that can occur. This is the reason why it is necessary to implement information security management system (ISMS) [1] for maintaining risk at acceptable level. The problem emerges if an accomplished result has lower performances level and exceeds deadline that happens most often because of unpredictable influence of different risk factors. Implemented ISMS is an important cohesion factor of the objectives, risks and performances management process, as it provides reliable and secure functioning of business information system and maintains operative risk at acceptable level. Being accomplished performances of processes mostly depend on acceptable risk level. Figure 2 shows dimensions of every objective and its relationship with risks and accomplished results of organisation.

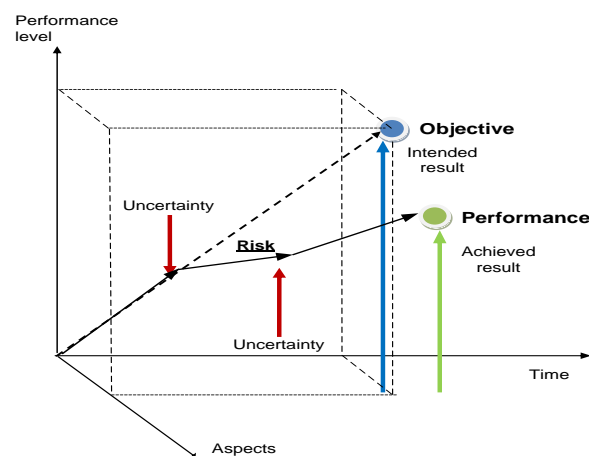


Figure 2: Dimensions of the objectives and risks impact on the achieved results

¹In the ISMS standard it is defined as *information asset* that consists of *pure information* (in electronic and printed forms and software), and *physical* and *human* asset.

In order to establish relation between objectives as intended results, and performances as achieved results, it is necessary to determine indicators as measure of results level. It is important for objectives and performances management that objective and performance indicators are identical, whenever it is possible, and aspects of identical objective and performance to be defined. In the Figure 3 unique objectives aspects, as well as organisation's key performances with identical indicators are shown. Aspects of the objectives and performances are oriented to [10]:

- a) All stakeholders that are:
 - Customers
 - Employees
 - Society
 - Partners, and
 - Owners or shareholders.
- b) Internal capabilities and competitiveness of organization, which include:
 - Processes and management systems
 - Resources
 - Competitors
 - Products and service characteristics, and
 - Environment sustainability.

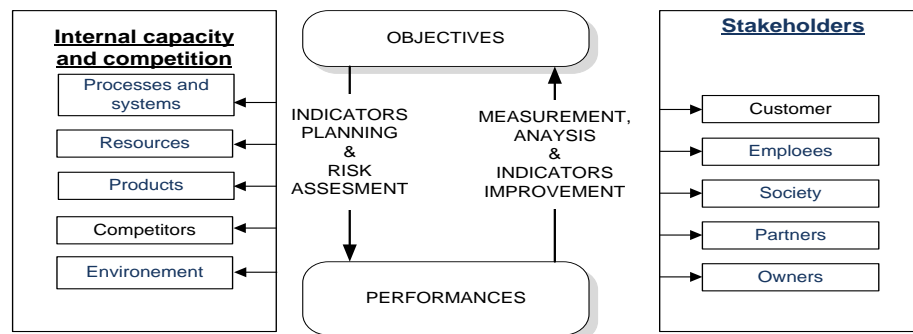


Figure 3: Aspects of the objectives and performances

In the first step, establishment of objectives is performed simultaneously with establishing key performances of organization. Then, objectives indicators are defined, which are, at the same time, performance indicators, too. Planning of indicators' value is done during defining organization's objectives. For every indicator assessment and risk treatment should be done, too. Monitoring of indicators is done during performances achievement in product/service realisation through regular activities. Improvement of the indicators values and objectives themselves is based on accomplished performances in the observed period of organization's business operation. So, the Deming's PDCA circle that depends on objectives (strategic, tactic, operative) time dimension is achieved.

Process of objectives deployment at all organizational levels, functions and processes (see Figure 4) is integrated into process of making and monitoring of annual business plan realisation. The process is developed as result of enlargement of quality management focus from quality systems compliance with standard requirements, to continuous achievement of organization objectives for all stakeholders. The key parts of objectives management process are as follows [10]:

- a) *Defining general strategic objectives* at the level of whole organization based on statements of vision, mission and policy, and oriented to the all aspects for the period of four years.
- b) *Defining tactic goals* for the entire organization within an annual business plan. These goals show strategic objectives' elaboration, adjusted for specific year. They contain financial and non financial objectives for entire organization with realistic and measurable indicators of organizational progress.
- c) *Progress indicators determination* for each objective/goal that should be, as much as possible, identical with internal capacity performance indicators and organization's competitiveness (processes, resources etc.), and indicators of these processes results (products, services, financial results) oriented to stakeholders.

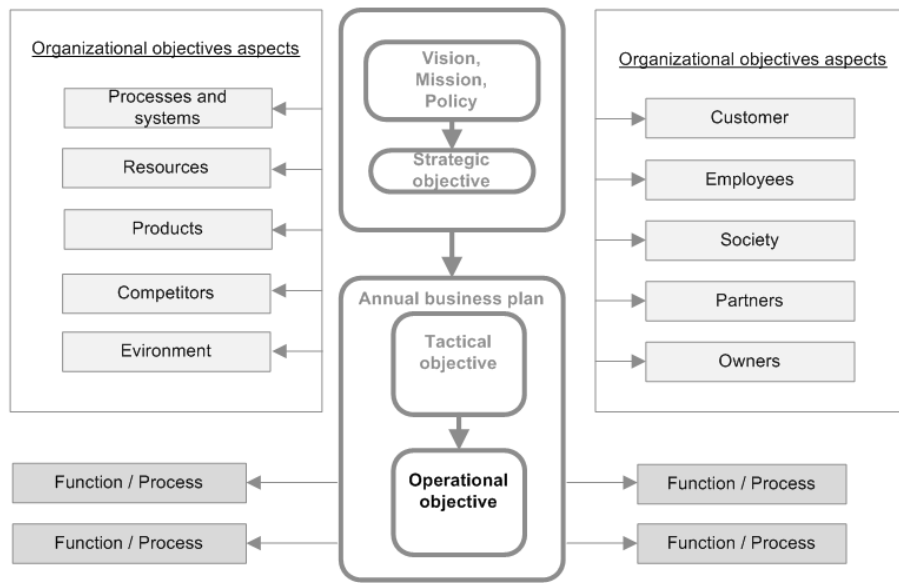


Figure 4: Process of quality objectives deployment

- d) *Objectives deployment* for functions and all levels of entire organization is done by transferring tactic goals to operative targets for each sector and process, together with accurate progress indicators. In this activity objectives could be additionally split up, according to key performances of specific organizational entity, and its processes and products.
- e) *Determining plans* for objectives achievement represents an activity in the objectives management process in which process owner determines for every indicator:
 - Activities for achieving objectives
 - Activity owner responsible for objectives' realization
 - Strategic risks for achieving objectives
 - Adequate strategic responses and measures for risks mitigation
 - Activities and measures of deadlines realization
 - Financial and other required resources.

Figure 5 shows activities plan for objectives achievement. The objective in Figure 5 is defined with the two indicators. For every objective indicator there are two strategic activities with required resources for objective achievement. For every strategic activity risk factor that could influence objective achievement should be assessed. In the first step risk identification is performed. Number of risk factors may be bigger or less than, or equal to the number of strategic activities. In this case five risk factors are identified where some risks are common for many strategic activities. In next step, risk assessment level is determined, by which a basic for evaluating and estimating risks is created. Evaluation helps to make decisions for risks treatment.

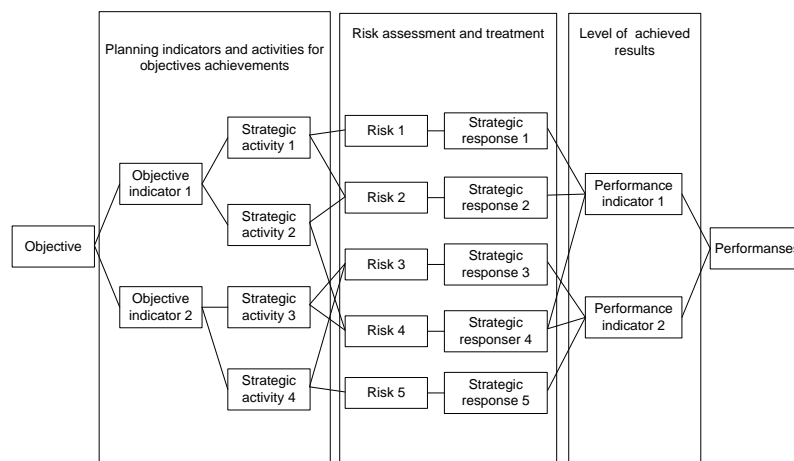


Figure 5: Planning achievement of objectives

Depending on risk assessment results, strategic responses and measures should be determined for appropriate risk treatment that may include [4]:

- *Avoiding risk*, like not initiating planned strategic activity
 - *Increasing risk*, when it could lead up to new initiatives for improvement,
 - *Eliminating risk causes*, such as vulnerabilities,
 - *Changes of risk likelihood and consequences*, e.g. by reducing exposition to threats,
 - *Distribution or sharing risk* with stakeholders (contractors, financial institutions etc.).
- f) *Monitoring of objectives achievement* can be done by measuring and keeping track of data, which are used for confirming performance indicators, during regular operative activities in product realization.
- g) *Objectives achievement analysis* is performed by creating SPC – Statistic Process Control graphic analysis of relations between progress of planned objectives indicators, and level of achieved performance indicators results. Effectiveness of objectives achievement counts as ratio of achieved to planned results. If decreasing of specific indicator is planned, effectiveness is counted as ratio of planned to achieved results [12].
- h) *Qualitative review and objectives improvement* is done by management, as a part of regular analysis of business plan quantitative markers achievements. During this review, improvements of objectives are identified as input for next business plan.

2.3 Management system standardization

Management system standardization is becoming main question of organization functioning in twenty first century. Beside organization owners, whose priorities are profit and fastest return of capital investment, the different stakeholders (such as: customers, community, employees, suppliers and government) put higher pressure and set requirements to organizations in an organized way. They intended to adjust their management systems according to various standards, and to be sure in advance that they will fulfil their requirements and expectations.

Certification of different management systems according to international standards is becoming organizations' priority. The most important standards for management systems and standards for their effective support, as well as related stakeholders are shown in Table 1.

Table 1: Standards for management systems and their effective support

Management system / support for effectiveness		Standard	Stakeholders
Abbreviations	Name		
<i>Standards for management systems to certification</i>			
QMS	Quality Management System	ISO 9001:2008	Customer
EMS	Environmental Management System	ISO 14001:2004	Community
OHSMS	Occupational Health and Safety Management System	OHSAS 18001:2007	Employees
FSMS	Food Safety Management System	HACCP/ ISO 22000:2005	Customer
FMS	Financial Management System	Sarbanes – Oxley Act	Shareholders
ISMS	Information Security Management Systems	ISO/IEC 27001:2005	Shareholders
SMS	Security Management Systems	ISO/PAS 28000:2005	Shareholderscommunity
CTCL	General requirements for the competence of testing and calibration laboratories	ISO / IEC 17025:2005	Customer
ENMS	Energy Management Systems	ISO 50001:2011	Customers community
RTS	Road Traffic Safety Management Systems	ISO 39001:2012	Customers community
<i>Support standards for common affectivity of integrated management systems</i>			
GSR	Guidance on Social Responsibility	ISO 26000: 2010 (*)	Stakeholders
MSSO	Managing for the sustained success of an organization	ISO 9004:2009 (*)	Stakeholders

Management system / support for effectiveness		Standard	Stakeholders
Abbreviations	Name		
	— A quality management approach		
RM	Risk Management	ISO 31000:2009 (*)	Stakeholders

III. STRUCTURE OF THE MODEL FOR INTEGRATED MANAGEMENT

Integration of all mentioned management systems with current systems in organization into an operative management system has major significance for their managers. Effectiveness of every management system is measured by their objectives achievement level. Purpose of every mentioned management system is to define management methodology of:

- Policy and particular system objectives;
- Risks which influence objectives achievement, and
- Processes and resources which are appropriate for fulfilling stakeholders' requirements, needs and expectations.

Figure 6 shows functional structure of integrated management system, which provides application of IMPROP model, shown in figures 3, 4, 5.

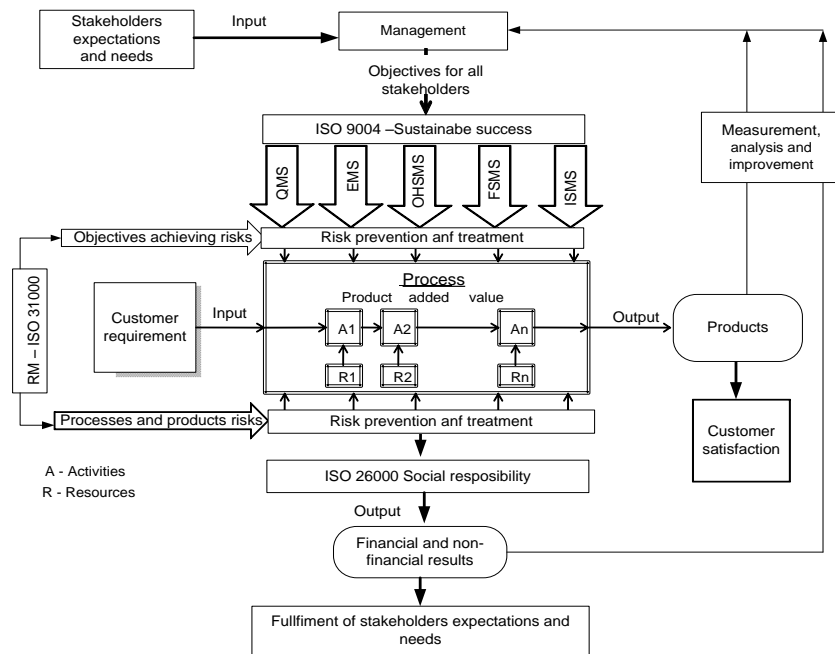


Figure 6: Functional structure of the integrated management system model

By establishing individual management systems according to appropriate standards that are shown vertically in Figure 6, a structure of partial management systems is defined, as following:

- QMS, according to ISO 9001 standard intended for defining processes for input transformation and adding product value, and for risk non-conformance prevention (treatment), and for confirmation and realization of quality objectives.
- EMS, according to ISO 14001 standard, purposed for environment risk prevention (treatment) and environment objectives and program determination and realization.
- OHSMS, according to OHSAS 18001 standards, made for occupational health and safety risk prevention (treatment), as well as occupational health and safety objectives and program determination and realization..
- FSMS, according to ISO 22000 standard, made for food safety risk prevention (treatment) and determination of objectives and HACCP plans for food safety.

- ISMS, according to ISO/IEC 27001 standard made for information security risk prevention (treatment), and determination of information security management system objectives and programs etc.

Customers' requirements, as routine activities, are inputs in process, and for objectives defining they are needs and expectations of stakeholders that management must identify. Similar to it, the process outputs to customers are products and services, and to other stakeholders whose results are performances of achieved objectives can be defined.

Using standards, which are shown horizontally in Figure 6, provides unique methodology establishment for common and balanced effectiveness of integrated management systems, so that:

- ISO 9004 standard provides guidance for organizations support to achieve sustainable success in satisfying their customers and other stakeholders' needs and expectations, through balanced objective achievement of integrated management system, as a whole,
- ISO 31000 standard provides common approach and support to standards of different management systems that deal with specific risk aspects,
- ISO 26000 standards help to organizations for establishment of social responsibility objectives that contribute to sustainable development.

Using IMPROP model is possible in the case of using one or more management system standards. Standards for management system effectiveness support are complementary among themselves and it is recommended to use them simultaneously. It is especially important to emphasize significance of team work in application of this model, because multidisciplinary experience and creativity as result of exchanged views are required.

IV. CONCLUSION

In searching for quick answers, because of changes in environment, modern management is obliged to continuously raise performances level of its organization. The managers must make strategic and operative plans and decisions at the same time, too. However, requirements for quality and reliability need standardization of not only products but also management system itself. These are not small challenges for the management's activities.

The IMPROP model, presented in this paper, joins all requirements faced to managers in methodological terms and provides input to integrated and simultaneous management of the processes, objectives, risks and performances. This model can be integrated into structure of any standardized management system according to international standards, such as: ISO 9001, ISO 14001, ISO 27001 etc.

It is generally accepted that integration of individual management system structure itself, in the terms of responsibility, documents, audits, review etc., is already very well known fact. The IMPROP model goes one step ahead and establishes unique and balanced effectiveness of integrated management systems and management system as a whole, using standards for sustainable success, social responsibility and risk management. The results of the IMPROP model application in different organizations using existing infrastructure and practice of drafting and monitoring business plan, proved to be effective management method for any organization [9], [10], [11], [12] and [15]. This model has been created as an open system in which specific objectives and performances of the organization can be included optionally.

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