

Innovations and ISO Standards Management in the Organizations

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Abstract

The turbulent environment in which organizations must function nowadays necessitates the continuous search for opportunities to innovate. Innovations require the availability of various resources, including knowledge, information, financial and organizational conditions, in order to be implemented. Building an innovation management system is of leading importance for achieving better results, increasing its advantages and strengthening the organization's place among its competitors on the market. The development, implementation and maintenance of such a system have the role of a framework for systematic innovation management practices. An important point is the quality level of the management system, which is why the International Organization for Standardization (ISO) is developing a special series of ISO standards based on CEN/TS 16555. The purpose of this article is to characterize the features of the ISO 56000 series of standards for innovation management in organizations and to bring their benefits into a strategic aspect.

Keywords: Innovation, ISO, Standards, Management, Organization

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Introduction

In today's globalized world, a key factor for the growth and sustainability of organizations is their ability to generate new ideas and implement innovations. The latter are closely related to the ability of companies to respond quickly and adequately to changes in the conditions of their surrounding environment. An important factor in this regard is the leading importance of the knowledge and creativity of the staff, which are also a basic prerequisite for the implementation of innovations. Through them, organizations can improve their competitive advantages and increase their strengths. Thus, today innovation from a modern and abstract concept has already become a necessary tool for achieving organizational goals.

1. Theoretical aspects and management of innovations

The concept of innovation appears as early as the time of Edward VI, who used it for the first time in 1548 in the sense of a change made in nature or fashion - a new practice, a new method, etc. In general, today it is considered that "innovations have existed since the beginning of human civilization" (I. Hristov, 2002, p. 136). In this regard, some researchers, such as I. Georgiev and Ts. Tsvetkov (1997), T. Nenov (2010), I. Panteleva (2013), point out that innovation is a concept with a complex content, to which it is difficult to give an unambiguous definition comprising all practical situations. Experience shows that this concept has a wide interpretation and at the same time application in practice. Its scope includes many and heterogeneous components. In this regard, we can point out that there are many definitions of the concept of innovation, among which we can single out, as the first attempt to define its understanding, that of Joseph Schumpeter (1912), according to whom *innovation* is reduced to *a change through which new types of consumer products and goods are introduced and used, new means of production and transport, markets and forms of organization in production*. In this regard, J. Schumpeter distinguishes five types of innovation, which he reduces to the following: 1) the production of something new that is not yet known to the users of the product; 2) the introduction of a new method of production or a new way of commercial use of a well-known product; 3) mastering a new market; 4) the opening of a new source of raw materials; 5) reorganization and establishing of trust. Given the time in which J. Schumpeter lived (1883-1950),

the emphasis was on material production, and his researches did not comment on services.

In modern research in the field of innovation, scientists emphasize on the complexity of this concept, using different approaches - static, dynamic, interactive. Thus, attention is focused on different aspects of the concept, namely:

- According to the *static* approach, innovation is the final result of the overall innovation activity, which is offered on the market and can be in the form of a new product, a new service, a new process, a new technology, a new approach, principle or method, management or other structures, standards etc.
- According to the *dynamic* approach, innovation is a process and as such can have a managerial, social, political and emotional nature
- According to the *interactive* approach, innovation is understood as an important organizational ability, called a "soft" key competence, i.e. organizational and management competencies (Panteleeva 2013 p. 31).

From the perspective of the Latin root (*novus*) of the concept, *innovation* represents a general innovation or renewal. It is the end result of the processes involved in the creation of a new product, service, process, method, technology or form of organization (Ivanova 2018, p.9). *Innovation* is also a new idea that goes through certain experiments in laboratory environment, development of prototypes, launching of real production and introduction as a product/service/technology, etc. on the market. In order for a new idea to be transformed into an innovation, it must find its market realization. The innovation, according to Hristov (2002) can be considered as such a change or the introduction of something new, which until that moment did not exist in a given economic entity, i.e. of something unknown until the time of implementation.

Given the popularization of the concept of *innovation*, in 2005 a definition was published in the Oslo Handbook, which is the most important international source of guidelines for the collection and use of data on innovation activities in industry, aiming to unify the meaning. According to this Handbook, *innovation* is the application of new or significantly improved products (goods or services) or processes, new marketing methods, or new organizational methods in business practice, workplace organization, or the organization's external relations.

In turn, Lindner et al. (2007) define *innovation* as the successful creation and implementation of new projects, concepts and ways of their development, as well as their subsequent dissemination among their users. Matthews (2011 p. 4) defines *innovation* as a new way of doing things: the introduction of new approaches to the production of products/services; production of new products or services; new business processes or new ways of managing. Maital and Seshadri (2012 p. 5) focus on finding the interrelationships between science and practice, as a result of which, according to them, *innovation* is the practical improvement and development of an original invention into a usable technique, product or process where creativity is applied to every aspect of the organization's value chain, from start to finish, to develop new and better ways to create value for customers. Innovations are based on new knowledge and the creative activity of people.

According to Zawawi, N. et al. (2016 p. 88) *innovation* are all practices that are new to the organization, including equipment, products, services, processes, policies, projects. We can also state that *innovation* represents the application of a new or significantly improved product or process, a new marketing method, a new organizational method in business practices, in workplace organization or in external relations. Given their specificity, innovations are based on the results of new technological developments, new combinations of existing technologies or the use of the knowledge acquired by the organization, namely of its staff and/or involved external experts.

As one of the most widely established in practice definition, we can point to the understanding formulated by a number of researchers, including Slavova and Petrov (1996 p. 12), Hage and Meeus (2006 p. 24), Borisova and Baltov (2011 p. 159) etc. According to them, the *innovation* represents

the final result of the innovation activity, executed in the form of a new or improved product or service realized on the market, a new or improved technological process used in practical activity. In addition to this, the definition of M. Elmquist, T. Fredberg, S. Ollila also gained wide popularity (2009), according to which innovation is a fundamental force enabling organizations to prosper, grow, achieve and sustain high profitability. The implementation of innovation activity allows organizations to generate additional income from new products or services, to save costs, to improve ongoing processes. In addition, as a number of researchers point out, the thesis that *innovation* can be considered as an activity, a process and an outcome has prevailed in the specialized literature:

- as an activity – it comes down to purposeful research, production, marketing activity and other interrelated activities, effective coordination and use of flexible forms and means for their management;
- as a process - a complex of partial, logically connected activities that are combined in a certain way in time and space, are separated by phases, as a result of which innovations appear as a continuously renewed creative process of creation and realization of novelties;
- as a result (of a tangible and intangible nature) - products, services, technologies, methods of organization and management, ways of communication, etc., created with different purposes - improving quality, increasing efficiency, addressing new needs, etc.

Perceiving innovations in this way in practice allows identifying different points of view and emphases in this concept, to make a more detailed study, as well as to select more precisely that aspect that is most suitable to be leading for the specific organization.

The main purpose of innovation is the creation of more competitive products and services, which are characterized as more optimized, newer and better responding to the needs of the market, as well as to create conditions enabling the achievement of faster and effective functioning and management of organizations.

We can also point out that according to A. Asenov et al. (2017 p.246), in specialized literature, there is an understanding that innovation has five supporting points, namely: novelty; real changes; positive evaluation by users (market); innovation as a process; tangible or intangible result of introducing the innovation. Every single innovation is oriented towards improving the current state, creating sustainability and growth in the future, which is why it has a corresponding result.

We can conclude that, regardless of the diversity in the definitions of *innovation*, the presence of one common characteristic found by all researchers is striking, namely – the element of novelty. Its manifestation has broad boundaries and covers every single activity, regardless of its sphere. This is the essence of innovation. Today, every organization strives to carry out innovation activity, which in practice leads to the improvement of its competitive advantages. Since innovation is an object of management like any of the activities in organizations, in the specialized literature some researchers focus their attention on the term *management of innovation* or *innovation management*. In this regard, we will point out that *innovation management* is defined as "the application of new management practices, processes and structures that represent a significant deviation from the existing norms and that over time transform the way many functions and activities are carried out in organizations" (J. Birkinshaw и M. Mol 2006, p. 81). Also, *innovation management* represents a set of principles, methods and forms of management of innovation development and related activities, parameters, structures, personnel in an organization (Panteleeva 2013 p. 191-193). Also in her research I. Panteleeva (2013) also commented that innovation management has a strictly goal-oriented orientation towards the future development of organizations by undertaking and implementing current innovation commitments. As a generalized definition, we can consider the thesis of T. Nenov (2010), according to which innovation management covers the entire process of managing

innovations based on the application of principles and functions inherent to management.

In the modern conditions of globalization, dynamism of the environment, constantly changing development trends, this turns out to be a rather difficult process to implement, which is characterized by a high degree of complexity. Innovation management is oriented towards the future development of organizations by undertaking and implementing specific innovation commitments. At the same time, innovation management as a process requires taking into account several principles, namely:

- ***renewal and investment in the interest of the owners***, which comes down to observing the priorities of the owners and shareholders, as well as reconciling their interests by making compromise decisions through innovations of favorable importance to the organization;
- ***complexity of management based on management functions and components of the external environment***, entailing the implementation of innovation management in accordance with the investment management;
- ***compatibility of decisions with the general and the private innovation strategy***;
- ***optimality***, expressed in the exploration of ways to achieve high results from the implementation of the innovation;
- ***economy***, referring to finding ways and means to achieve the defined innovation goals at minimal costs for the organization;
- ***return on investment***, associated with equalization of the updated value of income from innovations with the updated value of investments for a period that is shorter than the normatively accepted one in the company, as well as the receipt of net income;
- ***assessment of the innovation risk***, referring to compliance of the innovation decisions with the attitude of the shareholders and other investors towards the risk that the management of the organization assumes by implementing the chosen innovation strategy;
- ***consideration of the innovation processes as a system of continuous functioning***, which creates conditions analogous to those of managing any continuous process in an organization that requires the provision of appropriate organizational and functional structures with relevant specialists, units, information database, etc.

Adherence to the principles of management thus indicated plays an important role in the success of the innovation activity of organizations. In this regard, and considering the high degree of dynamism of the environment in which organizations operate today, we should summarize that the management of innovation should be considered as a complex cyclical process, the implementation of which must take into account, on the one hand, the trends in the development of the market and the environment as a whole, and on the other - the organization's ability to implement innovations in order to ensure the desired competitiveness, respecting certain principles for managing innovations.

All this shows that it is necessary to implement a suitable system with the help of which effective innovation management can be achieved. Since the quality characteristics of innovations are very important, regardless of the scope of the innovations, ISO is also interested in innovation management. It develops a special standard, obtaining a certificate for which guarantees the achievement of a certain level of quality of the innovation management system in the company. By itself, the management system is a business model aimed at strengthening relationships and preserving their flexibility.

2. ISO innovation management standards

The success of the innovation activities of any organization implies the implementation of a system for its management. The reason for this is the need to build a well-functioning set of

interconnected and interacting elements, which is the essence of the concept of a system. Its individual parts must achieve the efficiency of the work of jumped vessels. From the point of view of the organization, these elements are people, processes, technology, information, the interaction between which leads to the construction of a system. The application of a systematic approach in the activities of companies is a prerequisite for an effective process, including continuous innovation. The management system leads to the formation of a relevant business model, within which the connections between the individual elements are strengthened, and it is necessary to preserve the flexibility of the decisions made in order to adapt in time to the changes that have occurred.

Apart from the systematicity of the innovation activity, its quality is also of particular importance. In this regard, the International Organization for Standardization (ISO) is developing a special series of standards ISO 56000 Innovation Management Systems, in which basic models, concepts and principles related to innovations and their management are observed. ISO 56000:2020 Innovation Management Systems – Fundamentals and Vocabulary covers a set of standard operating procedures that define a general framework for the successful implementation, maintenance and continuous improvement of an innovation management system in companies. The standard was developed in such a way as to allow its application regardless of the type of specific innovation (of a material or non-material nature) carried out by a given organization. As a result, it can be used both in an innovation process based on internal innovation (closed innovation) and in open innovation, the ideas for which have an external source. ISO 56001 Innovation management system - Requirements certification provides an opportunity to increase confidence in the companies' innovation capabilities. A special document characterizing the framework for partnership in the field of innovation is also foreseen, so that the relevant organization can more easily decide which partners to target in order to carry out an effective innovation process. There are no restrictions on the type of organization, as a result of which new start-up organizations can enter the role of partners by collaborating with large companies, SMEs (Small and Medium Sized Enterprises), larger organizations, public and private sector entities, representatives of academia, public institutions and non-profit ones. The unifying element is that each of the partners seeks benefits from the joint partnership; therefore the results of it must be mutually beneficial for all. It is specifically noted that the ISO 56006 standard cannot be applied to those organizations that seek opportunities to innovate through mergers or acquisitions of smaller businesses.

In the core standard ISO 9000:2015 Quality management systems – Fundamentals and vocabulary, innovation is defined as a new or changed object that realizes or redistributes value. As a basic expectation from innovations Tz. Georgiev (2021, p. 48) points out that they bring significant impact, achieve a high return on investment and add value. All this implies building a system for managing the activities related to the implementation of innovations. The application of E. Deming's “Plan-Do-Check-Act (PDCA) cycle”, which is embedded in all standards of quality management systems of the ISO series, successfully leads to its effectiveness. Implementing an innovation management system represents a major change for any organization. At the center of this system is the innovation process, which practically covers the activities of identifying opportunities for changes, collecting data and analyzing them, finding conceptual solutions, identifying possible risks, deriving advantages and benefits, and determining value. Clause 9 – Performance Evaluation of ISO 56000 also defines indicators by which the degree of innovation can be measured, dividing them into the following three categories: at the input of the system and process; by throughput, speed and level of engagement; at the output to analyze the results. Furthermore, from the point of view of ISO 56000, innovation is also seen as a strategic tool for further development and achieving sustainability for companies.

The ISO 56000 family of standards includes:

- ISO 56000:2020 Innovation management – Fundamentals and vocabulary – *Published*

- ISO/AWI 56001 Innovation management system – Requirements – *Under Development*
- ISO 56002:2022 Innovation management system – Guidance– *Published*
- ISO 56003:2019 Innovation management – Tools and methods for innovation partnership – Guidance – *Published*
- ISO/TR 56004:2019 Innovation management Assessment – Guidance – *Published*
- ISO 56005:2020 Innovation management – Tools and methods for intellectual property management – Guidance – *Published*
- ISO/DIS Innovation management – Tools and methods for strategic intelligence management – Guidance – *Under Development*
- ISO/AWI 56007 Innovation management –Tools and management for idea management – Guidance – *Under Development*
- ISO/AWI 56008 Innovation management – Tools and methods for innovation operation measurements – Guidance – *Under Development*

In general, these standards are designed to support the innovation process in organizations, regardless of their origin, type and size. The main advantages that ISO 56000 allows to generate for the companies applying them are distributed in three groups:

- market:
 - orienting organizations how to satisfy unsatisfied customer needs;
 - increasing market opportunities;
 - dropping of barriers and time to enter a market;
 - increasing the competitive advantage of organizations;
- cultural:
 - removing bias towards new ventures;
 - building an organizational culture for innovation;
 - orientation towards partnerships, cooperation and communications in a global aspect;
 - social responsibility in the innovation process;
- organizational:
 - reduction of costs and risk for the organization;
 - improving the ability of managers to make decisions in conditions of risk and uncertainty of the environment;
 - improving the results of the organization as a result of the implemented innovation process;
 - accelerating the return on investment in innovation;
 - sharing of good practices in innovation system management.

ISO 56000 defines the basic definitions, concepts and principles of innovation management, with the result that the standards in this series are applicable to:

- organizations implementing an innovation management system or evaluating it;
- organizations that have set for themselves the goal of improving their ability to effectively manage innovation;
- interested parties (users, suppliers, investors, universities, etc.);
- entities that seek to improve communication processes through the concepts of the vocabulary used in innovation management;
- individuals developing innovation management and related standards.

According to ISO 56002, the effective management and corresponding development of innovation capacity implies the presence of seven key elements, namely: context, leadership, planning, support, operations, evaluation, and improvement. At the same time, eight principles are

considered to be the basis of the innovation management system:

- realization of value;
- leaders focused on the future;
- strategic thinking;
- culture;
- using insights;
- uncertainty management;
- adaptability;
- application of a systematic approach.

ISO 56003, for its part, focuses the attention on building partnerships to carry out innovation activities. The main benefits of such a partnership are related to an opportunity to gain access to knowledge, skills, technology and other assets of an intellectual nature that the organization does not have, as well as an opportunity to access various infrastructure resources, such as research laboratories, equipment for development of new products/services, etc. All this is closely related to the concept of open innovation, which is given a special place in ISO 56000. In general, under open innovation we should understand the application of external and internal ideas in the activities of the organizations, the use of targeted incoming and outgoing flows of knowledge for acceleration of innovation activities inside and outside economic entities, facilitating access to competent experts and new technologies that organizations do not have, active communication between interested parties, sharing the risk of innovation activity and encouraging the participation in it of smaller and newly created organizations. Open innovation is associated with removing the rigid boundaries of enterprises by "opening" their input and output to innovations (Ivanova 2019 с. 42-43).

The implementation of this type of innovation is closely related to intellectual property, for the management of which there is a special standard – namely: ISO 56005 Innovation management — Tools and methods for intellectual property management – Guidance (<https://www.iso.org/obp/ui#iso:std:iso:56005:ed-1:v1:en>). In it, intellectual property is defined as a key element in the innovation process, enabling the growth and protection of the intellectual activity of organizations and can be seen as a prerequisite for competitiveness.

The strategic nature of the innovation activity is laid down in ISO 56006:2021. It focuses on strategic intelligence in order to achieve rapid adaptation to the changes in the environment that organizations are subjected to nowadays. Through it, companies can achieve goals related to the discovery of new business opportunities and alliances; new competitive advantages; to anticipate risk; to discover opportunities for technology transfer; to overcome barriers to their development; and implement a structured approach to solving problems that arise. This also implies compliance with the specific principles mentioned above.

Conclusion

The way of developing the ISO 56000 series of standards implies structuring the innovation management system according to the PDCA cycle. As a result, it can be integrated into other quality management systems introduced in the organization, which will allow improving their efficiency and effectiveness. Through ISO 56000, it becomes possible to show the ability of a company to carry out innovative activity, to a sufficiently high level, allowing it to obtain an international standard for its authentication.

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