APPLICATION OF PROCESS APPROACH IN THE FIELD OF BUSINESS CONTINUITY MANAGEMENT

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Abstract: The complexity of business environment, the ability to better meet sophisticated requirements and expectations of users and stakeholders, as well as improving the manageability of an organizational system are main reasons for implementing a management system. The manageability of a system is greatly helped by the existence of documented information, which facilitates the monitoring of compliance with the requirements defined by system standards and confirms the justification of their application in continuity. In a modern turbulent environment, adequate response to changes is the basis for successful operations. This paper presents standards in the field of business continuity management.

Key words: knowledge management, organizational learning, business continuity, standards

1. INTRODUCTION

During the business, various problematic situations can occur, caused by changes in an organization and its environment. They can lead to non-compliance with organizational goals and expectations of users and/or stakeholders, and with the requirements of standards or legal obligations. Nonconformities lead to numerous negative consequences in the functioning of an organization. In today's business environment, market conditions and other external effects can put great pressure on every organization, and in conjunction with unavailability of some important organizational inputs, that can jeopardize the functioning or even survival of an organization. Therefore, considering business continuity is very important.

Organizational knowledge and experience when deciding on a response to an adverse event is of great importance. The concept of the continuum of knowledge and processes corresponds to the role of business process management in organizations [1], so special attention in organizations is paid to knowledge management. Organizational management today is based mainly on the process approach and the application of various information and communication technologies as a supporting system for effective storage and use of necessary data. That is why it is important for companies to include business continuity in their business models [2], and to included the aspects of adverse events during the analysis of organizational processes.

2. BUSINESS PROCESS MANAGEMENT AND ORGANIZATIONAL KNOWLEDGE

2.1. Business continuity and process management

Business continuity can be defined as the ability of an organisation delivery of its products or services at acceptable levels of quality even after even after the occurrence of an adverse event that significantly affects its functioning [3], or organizational resistance to failur, i.e. ability to withstand changes in its environment and still function [4]. According to ISO 22300 standard, business continuity is „capability of an organization to continue the delivery of products and services within acceptable time frames at predefined capacity during a disruption". The level of quality is predefined based on standards, acceptance of customer requirements or legal obligations. A disruptive event poses a danger that the organization cannot achieve what is defined. Business continuity is the planning and preparation in advance to enable that an organization to avoid unoperational periods of periods with reduced activity for core business processes during emergenciess. That unwanted or emergency events can include natural disasters, but also business crises, pandemics, violence, or any other events causing a disruption

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of business operations. Not all events can cause complete cessation of work activities; there are many events that can have the potential to adversely impact services or processes.

According to [5], business process management is the management of business processes that are structured, predictable and static in nature, and whose execution can be precisely planned in advance. The static nature of processes implies that their performance does not change during execution, and that improvements cannot be applied during their execution. However, in real situations it is necessary to enable dynamic process change by applying adaptations during execution, with constant updating of documented information to describe organizational changes. Thus, business continuity management consists of the activities prior to occurrence of unwanted event, and activities when the event occurs [2]. ISO 22300 standard defines business continuity management as "process of implementing and maintaining business continuity"[6]. Prior to occurrence of unwanted event, the organization must define and apply corresponding preventive measures and preparedness arrangments, while when it occurs, corresponding response activities have to be done. Business continuity management consists of the activities of risk, threats and vulnerabilities identification, decreasing organizational vulnerability. Organizations are required to have an effective response strategy based on impact assessment, plannning, as well as education and training.

Image 1 shows main business continuity management elements [10]: planning methodologies and plans. Corresponding planning methodology should take into account all potential adverse situations (incidents, emergencies, events, disasters) at the level of the organization and in its environment. They affect business processes, as well as information infrastructure. The lack of information is one of the causes of inability to achieve business continuity, as well as disruptions in supply chains.

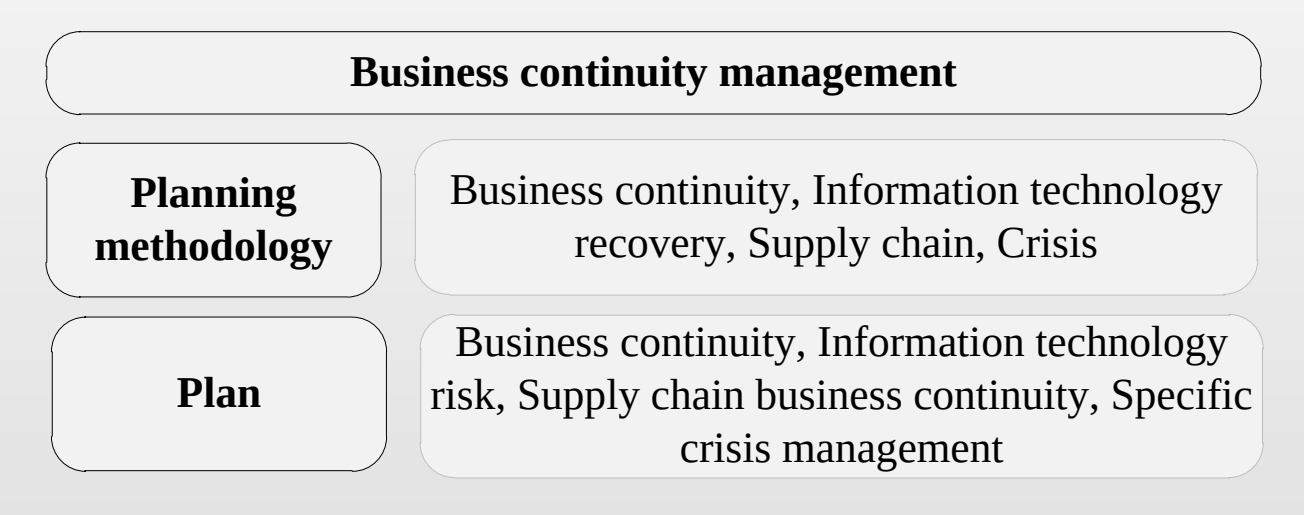

Image 1 – Business continuity management elements [10]

Adequate plans must be in place to prevent adverse effects on organizational operations. They refer to ways to achieve business continuity, with consideration of various information technology risks, as well as the possibility of continuing business after a predefined time, while minimizing losses and recovering all damaged parts of systems in shortest possible time.

2.2. Organizational processes and organizational knowledge

According to [1], the spectrum of processes in an organization includes static or structured, semi-structured and unstructured or unpredictable processes, the latter two being considered dynamic in nature and subject to dynamic business process management. For unstructured processes, goals, roles, and constraints can be defined in relation to expected execution, but the exact steps to be taken during the

process cannot be defined with certainty. Table 1 shows organizational processes and their connections to knowledge intensity.

Table 1 - Organizational processes vs knowledge intensity [1]

Process type	Knowledge intensity
Structured (static) process	Use of existing knowledge, lower knowledge-intesity
Semi-structured process	Use of explicit knowledge, tacit knowledge (small exceptions) and development of new knowledge (pre-defermined parts)
Unstructured process	Small use of existing knowledge, use of tacit knowledge and development of new knowledge

Organizational learning and knowledge are inextricably linked to business process management, because knowledge and competence are one of the requirements of a quality management system. The continuum of knowledge and process is such that organizations cannot use explicit or implicit knowledge alone. Traditionally, on the basis of clearly defined processes and procedures, explicit knowledge is created, while for the needs of dynamic business process, implicit knowledge is created and applied [1]. Only existing knowledge can be used in repetitive processes, but it is impossible in processes that are unstructured in nature, as well as in dynamic environment in which basic postulates are often changed, when the effects of applying only explicit knowledge are significantly reduced, so it is necessary to modify existing procedures or introduce new ones. Modern organizations base their activities largely on the implicit knowledge of employees who carry out certain work activities, especially in knowledge-intensive business processes.

2.3. Standardization

Standardization as the process of establishing provisions for general and multiple use in relation to existing or future needs to achieve an optimal level of regulation is important incentive for all organizations in the field. Standards are official documents stating requirements, i.e. rules, or guidelines to achieve an optimal level of organization. The standards connected to business continuity management are presented in Table 2.

Table 2 – 22300 series standards connected to business continuity management

Standard	Description	Status
ISO 22300:2021	Security and resilience — Vocabulary	Published
ISO 22301:2019	Security and resilience - Business continuity management systems - Requirements	Published
ISO 22313:2020	Security and resilience - Business continuity management systems - Guidance on the use of ISO 22301	Published
ISO/TS 22317:2021	Security and resilience - Business continuity management systems - Guidelines for business impact analysis	Published
ISO/TS 22318:2021	Security and resilience - Business continuity management systems - Guidelines for supply chain continuity management	Published
ISO/TS 22330:2018	Security and resilience - Business continuity management systems - Guidelines for people aspects of business continuity	Under review
ISO/TS 22331:2018	Security and resilience - Business continuity management systems - Guidelines for business continuity strategy	Under review

ISO/TS 22332:2021	Security and resilience - Business continuity management systems - Guidelines for developing business continuity plans and procedures	Published

ISO 22300:2021 provides main definitions of generic and subject-specific terms related to ISO/TC 292 activities, covering the ISO 22300 family of standards as well as some documents in the ISO 28000 family of standards [6]. It defines business continuity plan as documented information guiding an organization to respond to an unwanted event and resume its activities consistent with its objectives.

3. DISCUSSION

Business continuity management system, as part of the overall management system, according to ISO 22301:2019, helps organization to maintains and improves business continuity based on business continuity plan as available documented information. This standard also helps organizations to implement, maintain and improve a system to reduce risks, ensure conformity with defined business continuity policy, and prepare to respond to any dispruption when it arises. ISO 22313:2020 gives advice and firther recommendations how to apply the requirements of the business continuity management system described in ISO 22301, while ISO/TS 22317:2021 defines guidelines for implementation and maintaining a formal and documented impact analysis process.

When global problems appear, due to the diversification of production, a big problem occurs in supply chains, especially global ones. ISO/TS 22318:2021 standard describes methods for understanding and extending the principles of business continuity initially described in ISO 22301 and ISO 22313 to the management of supplier relationships and enabling supply chain continuity. The problem is when an organization relies on the continuity of supply of resources and the ability to continuously deliver the products or services, and the most important is to protect the organization's business activities from supply chain disruption.

People are the most important organizational resource [7], [8]. ISO/TS 22330:2018 defines the planning and development of strategies for the preparation of people for an incident: preparation through awareness and learning, coping with incident effects (respond), managing people (recover), supporting the workers after the incident (restore). The detailed guidelines on business continuity strategy determination and selection are stated in ISO/TS 22331:2018, while guidelines for developing and maintaining business continuity plans and procedures are described in ISO/TS 22332:2021. Presented guidelines to develop effective business continuity plans and procedures in a consistent manner are applicable to all organizations of any type, size and nature [9].

When considering business continuity, the application of IT technologies is very improtant. Adequate exchange of information in an organization is the basis for appropriate and timely decision-making. Information technology support enables the functioning of an information system in risky situations, as presented in Table 3 [10],[11].

Table 3 – Business continuity management and IT support [10],[11]

Loss events	Awareness level	Information technology support	
		Methodological	Technical
Incident	Internal	Business and information technology continuity management	Backup and recovery, Data protection and replication, High availability configuration, Cloud, Remote business continuity, Disaster
Emergency	Internal and external		

			risk service, Virtualisation
Disaster		Protection system integration, crisis management, early warning system, legal support	Geographic information systems, remote sensing, IoT, forcasting systems
Crisis	External		

The loss events are in previous table classified as incidents, emergencies, disasters, and crises, with awareness level that can be internal (orgnizational) and/or external (national or international). The information technology support consists of methodological and technological elements. For the purpose of business and information technology continuity management at organizational level many technical aspects have to be applied for data protection (regular backups, replication) and enabling continuous hardware availability (high availability configuration, cloud computing, virtualisation).

4. CONCLUSIONS

ISO standards in the field of business continuity management are presented in this paper. Modern organizations must be able to adapt to new challenges in their environment with continuous improvement by identifying risks and taking opportunities. In that sense, standardization enables certain requirements to be implemented to avoid some problems that can be caused by changes in the environment. During the twentieth century, standardization as a process dealt with technical product specifications to facilitate substitutability and increase product usability. It was a serious engineering task, because it was necessary to define the acceptable dimensions and materials of a product. Only at the end of the twentieth century, the ISO organization set a precedent and for the first time embarked on the standardization of management and business systems, starting from the ISO 9000 standards family, with the idea of standardizing business practices that ensure high reliability of products and services. Significantly later, the ISO 22300 standard was published, which contains a framework for planning, establishing, implementing, monitoring, supervising, maintaining and continuously improving the business continuity management system, which helps the organization, regardless of its type and size, to protect itself from unexpected and disruptive events. These standards promote preventive behaviour to help organizations to avoid unnecessary operation discontinuities.

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6. REFERENCES

[1] Szelągowski, M., Berniak-Woźny, J. (2019). *The knowledge and process continuum*. Knowledge and Process Management, 26(4), 308-320.

[2] Kato, M., Charoenrat, T. (2018). *Business continuity management of small and medium sized enterprises: Evidence from Thailand*. International Journal of Disaster Risk Reduction, 27, 577-587.

[3] Mid Sussex District Council (2019). *Business Continuity Policy Statement*. Retrieved from https://www.midsussex.gov.uk

[4] McCarthy, I., Collard, M., Johnson, M. (2017). *Adaptive organizational resilience: an evolutionary perspective*. Current Opinion in Environmental Sustainability, 28, 33-40.

[5] Gartner IT Glossary (2019). Business process management. Retrieved from http://www.gartner.com/it-glossary/business-process-management-bpm

[6] ISO (2021). *ISO 22300:2021 Security and resilience - Vocabulary*. The International Organization for Standardization, Geneva, Switzerland.

[7] Markovic, D., Janackovic, G., Simeunovic, N., Lalic, B. (2020). *Identifying and ranking novel indicators of MSMEs innovation potential*. Technology analysis & strategic management, 32(5), 529-541.

[8] Vasovic, D., Janackovic, G., Malenovic Nikolic, J., Milosevic, L., Musicki, S. (2018). *Promoting reflective practice in resource protection area: a step to forecast outcomes in uncertainty*. Journal of Environmental Protection and Ecology, 19(3), 1320-1329.

[9] Vasović, B., Janaćković, G., Vasović, D. (2021*). Analysis of IoT and swarm intelligence application in various fields*. In proc. of the 7th Conference with International Participation *Knowledge Management and Informatics*, Vrnjačka banja, The higher education technical school of professional studies in Novi Sad, pp. 107-110, ISBN 978-86-6211-127-2.

[10] Goh, H.M. (2018). *What exactly is BCM?* Retrieved from https://blog.bcm-institute.org

[11] Svata, V. (2013). *System view of business continuity management*. Journal of Systems Integration, 4(2), 19-35.