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Jasmina Ćurčić [1]
Sandra Milunović Koprivica
Zoran Nešić

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ANALYSIS OF STANDARDIZATION EFFECTS AND IMPROVEMENT OF BUSINESS QUALITY

Abstract: *Quality, in the conditions of very tough competition today, is perhaps the most important factor for achieving profitability and maintaining a position in the market, where the customer expects high quality products and is ready to pay the price for it. The goal of the company is to investigate customer satisfaction and, based on a specific analysis, to identify deficiencies and take measures to eliminate such deficiencies. What ensures the characteristics of a desired product or service, such as efficiency, reliability, quality, environmental protection, are represented by standards.*

Keywords: *quality, quality in business, standardization, effects.*

1. Introduction

Standardization of business processes (Business Process Standardization) is one of the approaches to increase the performance of business processes, which represents the use of standard parts and standard operating procedures for process activities, which remove the free decision of the executor, ambiguity and the possibility of mistakes (Stojiljković et al., 2022). The goal of business process standardization is to make process activities transparent and to achieve uniformity of process activities throughout the value chain and beyond company boundaries (Wüllenweber et al., 2008). Standardization of business processes includes goal-directed homogenization (eg reduction of process variants) and achieving economies of scale for process grouping (Laumer et al., 2015). BPS can be understood as the unification or homogenization of process variants, and it means the development of a standard process or best practice that will be used as a template for processes throughout the organization (Tregear, 2015).

BPS involves matching process variants with the main process. The main process can be equal to an existing process variant, a newly designed target process containing selected tasks of existing processes, an external reference process or an external best practice procedure, a choice of the most frequently used variant, a process variant with the minimum average distance to other variants, etc. (Reichert et al., 2015).

In practice, there are sometimes reasons for maintaining partial variability between business processes. A key reason for enabling process variability relates to the benefits of, for example, being able to deal differently with different types of customers or in different cultures. When determining the appropriate level of BPS for its business processes, the organization should analyze the effects that BPS has on process performance, but also the characteristics of the business process itself that it potentially wants to standardize.

2. Economic effects

Changes in the field of standardization in the previous years are becoming dominant and accelerating. Standardization has various effects on organizations, industries and

Corresponding author: Jasmina Ćurčić
Email: jasmina.curcic@ftn.kg.ac.rs

economies. Some of the key effects of standardization include:

Increase efficiency and reduce costs - Standardization enables the use of the same materials, processes and equipment, which reduces the need for training, manufacturing errors and inventory. Also, products can be produced faster and at lower costs, because already established practices are used.

Quality improvement - Standardization enables the achievement of consistent quality, as all components or processes adhere to pre-defined norms and specifications. This helps reduce variation in products or services.

Facilitating trade and access to markets - Through global or national standards, products and services become recognizable and compatible in different markets, thus facilitating trade and reducing the need to adapt products to specific requirements in different countries.

Innovation - Although standardization can reduce flexibility in certain aspects, it can also encourage innovation. For example, when basic components are standardized, manufacturers can concentrate on improving other parts of the product or service, which can lead to new technological solutions.

Increasing competitiveness - Standardization enables easier competition among companies, because all companies work with the same parameters. This allows companies to compete on price, quality and innovation, while consumers benefit from a wider range and lower prices.

Reducing Risk and Uncertainty - Standards help reduce uncertainty about the performance of products and services, as users can have confidence that products that meet certain standards meet basic requirements.

A large number of examples of companies that have achieved great economic benefits through the application of standards can be cited, such as NTUC FairPrice - Food Retail/Logistics (Singapore), PTT Chemical Public - Petrochemicals (Thailand), Electrical Devices Joint Stock Company - Electrical Devices (Vietnam), Festo Brasil - Industrial Automation Equipment (Brazil), Gerfor - Faucets, Pipes and Piping Systems (Colombia), Danper - Food Industry (Peru) and many others. Successful case studies, starting in 2010, have been conducted by ISO and its members in companies from over twenty countries around the world, applying the ISO methodology. Most of the selected organizations are manufacturing companies, which is not surprising given the historical importance of technical standards in the field of manufacturing. In conducting studies, key data can be obtained by researching documentation and available data on a given sector. However, the most information about the company is obtained from conversations and workshops with company representatives, as well as from company publications such as annual work reports and other similar documents (eg manuals for the implementation of the quality management system). The case studies cover companies of various sizes, from small businesses with twenty-five employees and annual sales revenue of around USD 4.5 million, to large conglomerates with several USD GBP thousands of employees boasting annual revenue of over USD 2.5 billion. Despite the huge disparities in terms of size, the results consistently show that companies realize tangible benefits from implementing the standards. AUD Case studies carried out in companies highlight three main types of benefits from the implementation of standards: 1) Improvement of internal operations, 2) Innovation and increase in the scope of operations, 3) Creation or entry into new markets (Đerundino et al., 2014).

However, standardization can also have negative effects, such as reducing creativity or flexibility, as it forces organizations to stick to defined frameworks and processes.

Standardization — setting common technical standards, norms, or processes across industries or regions — can have a

significant impact on the economy. Several economic effects resulting from standardization can also be: Standardization — setting common technical standards, norms, or processes across industries or regions — can have a significant impact on the economy. Several economic effects resulting from standardization can also be as follows.

2.1. Reduction of production costs

Economies of scale: Standardized components, processes and systems can be produced in large quantities, which lowers costs per unit. This is because manufacturers can use the same parts for different products or models, simplify production and negotiate better deals for raw materials. Economies of scale: Standardized components, processes and systems can be produced in large quantities, which lowers costs per unit. This is because manufacturers can use the same parts for different products or models, simplify production and negotiate better deals for raw materials.

Streamlined supply chains: By using standardized materials and components, companies can streamline their supply chains, reducing inventory management costs and lead times.

Example: The global standardization of USB ports and chargers has reduced production costs for technology companies and made it cheaper for consumers to buy accessories.

2.2. Increased market access and trade

Facilitates international trade: When products or services adhere to common international standards, it reduces barriers to trade, such as the need for different specifications in different countries. This makes it easier for companies to export goods globally.

Mutual recognition of standards: Countries that adopt similar standards for products or services can simplify cross-border trade, encouraging international business and investment.

Example: The World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBT) aims to ensure that different countries recognize each other's standards, reducing barriers to international trade.

2.3. Innovation and technological progress

Promotes innovation: Standardization can encourage technological innovation by providing a stable platform for new development. When there is a clear standard, companies can focus on improving the features, performance or other unique aspects of their products rather than reinventing the core elements.

Faster adoption of new technology: With standardization, new technologies and practices can be more easily adopted by businesses and consumers, as compatibility and integration are less of a concern.

Example: The widespread adoption of Wi-Fi standards (such as 802.11) has enabled a wide variety of devices to seamlessly connect to the Internet, promoting innovation in wireless technology and accelerating the growth of the Internet of Things (IoT).

2.4. Improved quality and consumer confidence

Consistency in product quality: Standardization ensures that products meet certain quality thresholds, which benefits consumers. Consumers know what to expect in terms of reliability, safety and performance, increasing their confidence and demand for standardized products.

Reduced risk of product failure: With standards in place, products are less likely to fail or cause damage, which improves overall consumer satisfaction and reduces costs associated with product recalls and liability. Example: Safety standards in the automotive industry, such as crash test

ratings, assure consumers that vehicles meet certain safety requirements, increasing confidence in the purchase.

2.5. Increased competition

Leveling the playing field: Standardization often leads to greater competition by making it easier for new entrants to join the market. When companies use common standards, they can focus on differentiation through other factors such as branding, customer service and innovation rather than technical compatibility.

Global competition: International companies can compete equally when products adhere to the same standards, increasing competition and lowering prices for consumers.

Example: In the telecommunications industry, standardized network protocols allow multiple service providers to offer similar services across regions, encouraging competitive pricing and innovation.

2.6. Job creation and economic growth

Creation of new industries and jobs: Standardization can stimulate the creation of new industries or sectors that focus on maintaining, developing or testing standardized systems. This can lead to job creation and economic growth.

Sector growth: As industries adopt new standards, there may be growth in related sectors that provide services or goods in support of the new standards.

Example: The rise of 4G/5G mobile standards has not only created jobs in telecommunications but also in sectors such as software development, infrastructure construction and consumer electronics.

2.7. Welfare of consumers and producers

Consumer benefits: Consumers benefit from standardized products that are widely available and compatible. This improves access to competitively priced goods and services. Manufacturers' benefits: Manufacturers can achieve higher productivity and lower costs by using standardized materials and processes, which increases their profit margins and market competitiveness. Figure 1 shows a model of the economic effects of standardization.

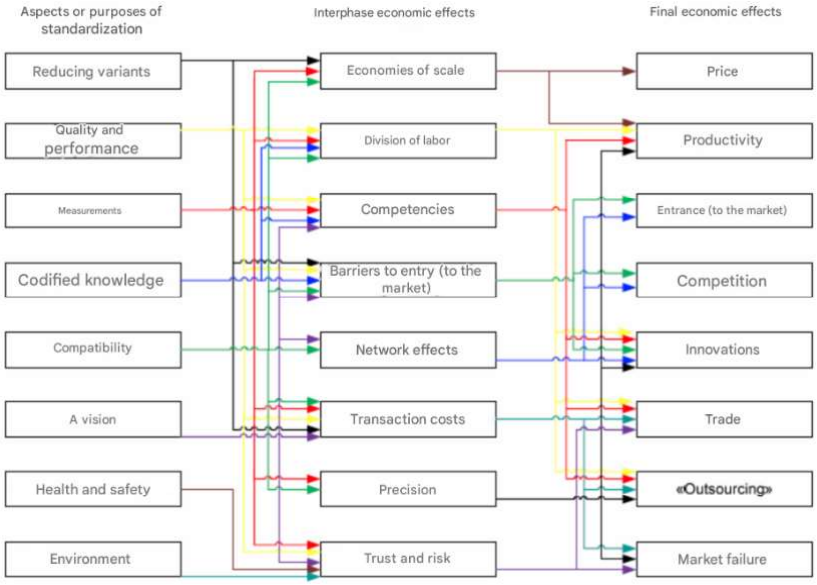

Figure 1. A model of the economic effects of standardization (Swann, 2010)

3. Social effects

Standards are the "language" of quality for raw materials, products and processes, work, organization, trade, culture, etc. They represent a compromise agreement between producers, trade and consumers in one country and in a certain period of time. That is why it is often said that standards represent order in work and life, because they enable proper communication when solving problems related to quality.
Standards have a largely positive impact on most aspects of human life. Standards ensure the desired characteristics of products and services, such as quality, positive impact on the environment, safety, reliability, efficiency and interchangeability.

The European Community incorporated quality and technical standards into its foundations with the Europe '92 project. The White Book from 1985 and the New and Global Approach established equality in the application of technical regulations and standards and the principles of accreditation, certification and testing. By promoting the new European quality policy, the European Union achieved a further evolution of the application of the economic aspect of quality, as a key factor for the financial performance of business and achieving the competitiveness of European organizations (Heleta, 2008).

Product quality and standardization are the result of the technical-technological and economic development of a country and are closely related to the demands and needs of consumers. In international economic relations, standardization is the basis for eliminating all forms of barriers and restrictions in the circulation of goods and services. The modern approach to standardization is closely related to the approach to quality and, accordingly, contains the following elements:

- modern bases for the standardization of production and services, as conditions for more efficient international exchange, mutual recognition of quality documents, etc.,
- unique or common conditions for successful cooperation with economic and other integration groups (EU, EFTA, etc.),
- harmonized national standards with the level of developed industrial countries, - protection of the market from products and services that can threaten the safety and health of people, environmental protection, energy savings,
- wider application of the attestation system - verification and authorisation,
- development of standardization according to market economy criteria,
- cooperation with all technical committees for standardization, in the construction and adoption of standards, etc.

The development sector (department) is most often responsible for the development of standardization within a company (enterprise), which should fulfill certain tasks (The concept of standard, n.d.):

1. determination of standardization policy,
2. determination of the standardization development plan and program,
3. determination of norms and legal regulations in the field of standardization,
4. development of standardization and implementation of national and international standards,
5. development of standards for all phases of work (construction, procurement, production, quality control),
6. determination of the effects achieved by the application of

standards through economy, consumer protection,
7. development of laboratories for product certification i
8. safety and health protection.

The ISO 9001 certificate of conformity has more than a million organizations in 170 countries, and the average annual growth in the world is about 15%. Quality management systems are supported by growing globalization. The increasing range and quantity of products, the decreasing number of required machines and devices, as well as the shortening of production time and product life cycle guarantee development only for organizations that can meet the expectations of their customers (Pacana & Ulewicz, 2020).

4. Technical-technological effects

Technical standards refer to the establishment of norms and requirements for technical systems with specifications of standard engineering criteria, methodology and procedures. The complexity of modern technologies, especially their systemic nature, has led to an increase in the number and variety of standards affecting certain industries or markets. Technical standards are established norms or requirements applied to technical systems. Technical standards have their specificities, especially in today's environment of information and communication technologies, in which time is an important dimension. Organizations are often in a situation of deciding when is the best time to move to a new technology (Rakić, 2019).

For example, the introduction of the Https protocol standard ensures the safety of users when it comes to hacker attacks. Any link that contains the http protocol is not safe and there is a possibility of exposure to one of the viruses. By introducing the letter "s" into the internet protocol, the data of the end users is protected and this guarantees the security of access to every link, sent to e-mail as well as web presentations that are accessed.

5. The innovation effect

Innovation is one of the key factors of competitiveness on the market. Companies in today's era must possess innovative ability - it is desirable to introduce novelties more often in product quality, product offer and business. Standards are the ones that can play an important role and bear fruit, i.e. bring enormous benefits to the company. The International Organization for Standardization (ISO) pays a lot of attention to the connection between standards and innovations.

Connecting the Institute for Standardization with as many higher education institutions as possible is of great importance, given that students are the biggest potential users of standards in the future. The term "users of standards" means the creation of new standards and the introduction of innovations into already existing standards, i.e. their innovation. Consumers are a very interesting category that benefits from standardization in several ways: consumer involvement, consumer safety and sustainability. When it comes to innovation, the author Swann identifies the following factors: (Blind, 2013):

a) Standardization helps to build focus, cohesion and critical mass in emerging stages of technology and markets,
b) Standards for measurements and tests help innovative companies to demonstrate to customers that their innovative products have the characteristics they claim to have, but also acceptable levels of risk to health, safety and the environment,
c) Standards codify and disseminate the state of science and technology and establish best practice,
d) Open standardization processes and standards enable competition between and within technologies

and thereby contribute to innovation-driven growth.

6. Conclusion

As can be seen through the chapters of this work, standardization promotes effectiveness in several areas - in the economic, social, technical - technological and innovation areas. Economic and innovative effectiveness contribute to the growth and development of the economy as a whole, while technological and social effectiveness contribute to the growth and development of the human population. By applying and respecting the standards, business success is enabled on the one hand and data and information protection on the other hand. Business practice confirms the necessity of applying standardization, in order for economies to be more competitive and operate more effectively.

"Where there are no standards, there can be no improvement." - Maasaki Imai.

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Jasmina Ćurčić
University of Kragujevac,
Faculty of Technical Sciences
Čačak,
Čačak,
Serbia
jasmina.curcic@ftn.kg.ac.rs
ORCID 0000-0002-2542-0680

Sandra Milunović Koprivica
University of Kragujevac, Faculty
of Technical Sciences Čačak,
Čačak,
Serbia
sandra.milunovic@ftn.kg.ac.rs
ORCID 0000-0001-6413-433X

Zoran Nešić
University of Kragujevac,
Faculty of Technical Sciences
Čačak,
Čačak,
Serbia
zoran.nesic@ftn.kg.ac.rs
ORCID 0000-0001-6004-373X