CENTRAL EUROPEAN REVIEW OF ECONNOMICS & FINANCE

2022
Vol. 38, No. 3

Articles

ISSN 2082-8500
e-ISSN 2083-4314

Central European Review of Economics & Finance
Kazimierz Pulaski Technical University of Radom
Publishing Office
ul. Malczewskiego 29, 26-600 Radom, POLAND
https://cer.uniwersytetradom.pl/contact/, cer@uthrad.

Patronat wydania:

Polskie Towarzystwo Ekonomiczne Oddział w Radomiu

Contents

Articles

ARTICLES

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE
vol. 38. No 3 (2022) pp. 5-41
DOI https://doi.org/10.24136/ceref.2022.010

Magdalena Borowska[*]
Izabela A. Kołodziej[*]

Identification of social innovations in e-learning education of students during the COVID-19 pandemic

Abstract

The article is theoretical and analytical in nature and aims to identify the manifestations of social innovations in e-learning education at the Wroclaw University of Economics and Business during the COVID-19 pandemic. The study focuses on the need for academics to use innovative (novel) distance learning tools. In addition, an attempt was made to assess the impact of selected tools on the development of new competencies among students. In order to achieve this goal, a proprietary online questionnaire was developed and free interviews were conducted with students. The survey was created in MS Forms application. A total of 151 students (second year) studying at the Faculty of Production Engineering of the Wroclaw University of Economics were surveyed. The survey period was in the summer semester 2020/2021. The study showed that the use of virtual tools contributed to the development of additional skills among students, such as teamwork and collaboration skills or creativity.

Keywords Distance education, E-learning, Social innovation, Innovative e-learning tools, Competencies, Higher education, COVID-19 pandemic

JEL classification: O35, I23

Paper type Research paper

[*] PhD, BEng, Wroclaw University of Economics and Business, Poland.
[*] PhD, BEng, Wroclaw University of Economics and Business, Poland.

Introduction

E-learning is a form of learning that has been widely used in both enterprises and educational institutions such as universities, which is the focus of this article. In the literature, e-learning is also referred to as distance learning or distance education. Therefore, in the present study, these terms will be used interchangeably. Many universities in Poland, responding to the needs of modern education, have long created e-learning platforms, approaching distance education as a complement and enrichment of the educational process with active, audiovisual methods. Some universities use simple text-based forms of e-learning for student self-study. Others are introducing more advanced, interactive forms of distance learning, such as the Polish Virtual University (http://www.puw.pl) (Unold, 2010).

These are undoubtedly manifestations of social innovation in the field of education. These innovations occur through the implementation of a new or significantly improved product (educational goods or services), process, working method, or new organizational method (form) in educational practices in the workplace or in the relations of educational institutions with their environment. Innovations of this type may involve the entire education system or its components (Vincent-Lancrin, Urgel, Kar, & Jacotin, 2019). As it is the case with other innovations, they may have the character of planned and intentionally undertaken actions aimed at fostering development, but they may also be forced by e.g. a suddenly changing situation in the environment.

Findings from the Organization for Economic Cooperation and Development study show that, contrary to popular belief, there is a fairly widespread occurrence of innovations in the education sector. This is especially true for higher education in Europe, which has seen faster rates of adaptation and accepting innovations than secondary and primary education sectors (Vincent-Lancrin, Urgel, Kar, & Jacotin, 2017).

With the outbreak of the COVID-19 pandemic, regardless of the degree to which this type of innovative education had been used to date, all universities in Poland, but also worldwide, were challenged with an emergency requiring action to sustain the teaching process. To meet this challenge, distance learning and online teaching solutions were implemented. It is important to point out that online learning is not new, nor is distance learning. However, COVID-19 has raised the need to explore online teaching and learning opportunities). It turns out that properly chosen e-learning tools play a key role during the ongoing pandemic as they help teachers to plan educational activities, provide teaching materials, track and verify learning progress (Almaiah, Al-Khasawneh, & Althunibat, 2020) and also help diversify the classes. This concerns in partular:

- virtual whiteboards, which enable team task solving, creative problem solving by using available templates such as "5 Whys", mind maps, or brainstorming,
- applications such as Canva or Genially to create interactive presentations, posters, flyers, resumes,
- knowledge verification tools such as Kahoot, Quizizz, or Wordwall, which support users in creating games, quizzes, rankings, etc.

It is important to remember that e-learning has both benefits and limitations for both students and teachers. On the one hand, distance learning technology allows students to attend classes at their preferred times and places (asynchronous mode), or only places (synchronous mode) (Sun & Rueda, 2012). The use of various tools affects the development of the so-called soft skills of employees, such as design, teamwork, creative thinking, emotional intelligence, dealing with stress, and technical skills associated with the operation of various tools. On the other hand, unlike conventional teaching in educational facilities, teachers and students are not physically present in the classroom, so students may lack opportunities for interaction, collaboration, and direct communication, leading them to be less engaged in learning activities (Tuckman, 2007). Furthermore, distance learning provides students with much more freedom to decide how and when they interact with others. Therefore, it is important for teachers and curriculum designers to better understand what factors influence students' engagement in the educational process (Sun & Rueda, 2012) so that online learning actually contributes to the acquisition of the necessary knowledge, but also shapes the already mentioned soft competencies. Hence, the need has arisen for building a research approach focused on social issues. The present paper focuses on the perspective in which changes in the environment have forced universities to look for innovative ways of doing things to continue the learning process. The purpose of this paper is to identify the manifestations of social innovation (viewed by its individual types) in e-learning education at the Wroclaw University of Economics during the COVID-19 pandemics. The focus of the study is on the need for academics to use novel (innovative) distance learning tools. Furthermore, an attempt was made to assess the impact of the selected tools on the development of new competencies among students.

The first part of the paper is focused on presenting the issue of e-learning and social innovation in distance learning based on the literature studies. The remaining part of the paper is devoted to the presentation of the results of our research.

1. E-learning in higher education

Due to the rapid evolution of technology, there is no universal definition of e-learning. It has been defined in many different ways. Terms such as e-learning, online learning, technology-enhanced learning, and distance education are used interchangeably (Moore, Dickson-Deane, & Galyen, 2011). For example, Urdan and Weggen (2000) analyzed these problems from the standpoint of delivery of contents and defined it as "the delivery of content through all electronic media, including the Internet, intranets, extranets, satellite broadcasts, audio/videotapes, interactive television, and CD-ROM. Meyen et al. (2002) and colleagues focused on knowledge acquisition and consider e-learning as "the acquisition and use of knowledge disseminated and made available through a variety of means". Khan (2005)looked at e-learning from the perspective of pedagogy and contents and access and defined it as "an innovative approach to providing a well-designed, learner-centered, interactive learning environment for anyone, anywhere, and anytime, by leveraging the attributes and resources of various digital technologies along with other forms of learning materials tailored to an open, flexible, and distributed learning environment". Unold (2010), on the other hand, wrote about distance education in the context of a distance between the teacher and the student. This distance, as this scholar pointed out, can be both geographic and temporal.

Researchers, however, are in agreement that e-learning has grown rapidly nowadays due to various technologies and devices for accessing educational resources. These include laptops, computers, smartphones, and tablets (Al-Fraihat, Joy, Masa'deh, & Sinclair, 2020).

E-learning can also be approached from the standpoint of:

- means of communication,
- schedule,
- e-learning class structure,
- technologies used.

There are different ways for students to communicate with each other and with the lecturer. E-learning can occur through web applications. Another way to communicate (if the distance is not an issue) can be peer-to-peer communication to create blended e-learning that offers both online and face-to-face interaction. Modern technological advances are expanding the definition of the peer-to-peer term, as two-way video or two-way audio can be used to create a blended e-learning experience.

E-learning can be both synchronous and asynchronous, depending on the schedule used. In the first case, communication takes place in real time, e.g. video conferencing, teleconferencing, or online chats. The second

method uses other means of communication that do not require real-time responses, e.g., email, blogs, online forums, etc. This results in the response of both the student and the teacher being either delayed (asynchronous learning) or immediate (synchronous learning).

The structure of an e-learning class refers to the way the class is taught. E-learning contents can be self-studied (with the teacher providing students with the materials they need to complete/ pass the course, which they must learn according to a set schedule), taught by an instructor (if the teacher actively participates in the learning process, offering their support to help pass the course), or self-studied with an expert (a combination of self-studied and instructor-led methods). In both the first and second methods, the student interacts with the teacher who checks his or her progress.

E-learning can be accomplished through the use of various forms of technology supported by media generating information. While video/audio is a viable means to implement instruction, more current technology enhances learning efficiency because it offers more means to convey information. Technology is the most volatile element of e-learning. The more advanced it is, the more e-learning opportunities there are. The evolution of the Internet has contributed to the emergence and growth of e-learning as the technology itself has developed. With the increase in speed and decrease in the size of devices, learning becomes more flexible, thus affecting the popularity of e-learning. Nowadays, most people have access to the Internet through various devices like cell phones and smartphones, and therefore taking online classes has become very convenient. Whether students are on the go, engaged at work, or staying at home, they can use the tools that are used in e-learning (Unnikrishnan, 2016).

When describing the problem of e-learning, it is important to clearly distinguish between two approaches: corporate and academic, as there is a significant difference between corporate training and academic education provided via e-learning. In this paper, the focus is on academic e-learning, which is characterized by, among other things (Szopa, 2009):

- the deadlines synchronized with the schedule of the academic year, and the training itself is closely related to the subject matter of the discussed course,
- classes in student groups, analogous to conventional classes,
- the traditional way of grading and examining,
- a high degree of interaction with the teacher and between students,
- often a low budget (or lack of budget) for introducing new products, educational content primarily created independently by the teacher.

Many scientists (Aboagye, Yawson, & Appiah,2020; Alqahtani, & Rajkhan, 2020; Maatuk, Elberkawi, Aljawarneh, Rashaideh, & Alharbi, 2022; Stecuła,, & Wolniak, 2022) became interested in the issue of e-learning due to the situation related to the COVID-19 pandemic. Therefore, the demand for transforming traditional classes into e-learning classes has increased so that they do not distort the effects of education with the use of modern methods. Therefore, the authors of this study decided to analyze what e-learning tools were known to students before and after the outbreak of the pandemic.

These features are related to the synchronous mode of learning as indicated above, which enforces the need for a variety of distance learning tools that activate learners in the classroom. These tools are objects or devices used to directly influence the implemented teaching process in distance education. They are supposed to enable the educational process and ensure its good quality (Walancik & Dwilewicz, 2018). Example comparison of these tools is shown in Table 1.

Table 1 Characteristics of innovative teaching tools

Tool	Tool characteristics	Areas of study where the tool can be used	license
Virtual boards MIRO/MURAL	• A scalable, device-ready whiteboard that enables working in co-located, distributed, or fully online teams. • Possibility to work in real time and asynchronously • Integration with popular tools such as: Google Drive, Dropbox, Jira, and Google Contacts • Ability to work on ready-made templates, e.g.: "5 Whys" model, mind maps, brainstorming, etc. • Tracking student's progress	• Humanities • Social Sciences	• Free version • Paid version
Canva	• This is a tool that allows users to create graphic designs, even for people with no experience. • The site includes a library of templates, fonts, and images that can be quickly and easily modified. • The tool also helps create infographics, presentations, posters, resumes, flyers, etc. • Possibility to work individually and in teams		

cd. Table 1

Genially	• Creating visual and interactive content, presentations, infographics, images, games, reports • Possibility to organize all content needed for the lesson: videos, texts, commands, documents, links to external resources, in one slide	• All fields of study in which users want to verify learning outcomes	• Free version
Wordwall	• Creating interactive exercises in online and printable versions • Preparing materials based on available templates such as: match-ups, missing words, chart with labels, test, gameshow quiz, roulette, wheel of fortune, etc.		
Quizizz	• Users can create their own quizzes and use those already created. • The tool is used for introducing new topics (recognizing the level of knowledge to start with), checking the knowledge gained by students during class, students' independent preparation for the class (as a homework assignment). • Creating games, quizzes by both teachers and students and sharing them		
Kahoot	• Asking questions/organizing polls during class. Questions/answers are shown on the main device, such as the teacher's screen on the MS Teams platform • Assigning students challenges to complete at an individual pace to revise the material • Check learning outcomes with reports		

Source: Author's own elaboration based on: (Canva, 2021; Genial.ly, 2021; Kahoot, 2021; Miro, 2021; Mural, 2021; Quizizz, 2021; Wordwall, 2021)

These tools can be divided into two groups, i.e. those that enable creative work and teamwork. This means Miro/Mural virtual whiteboards, which enable, among others, working on ready-made templates, e.g. the "5 Whys" model, mind maps, or brainstorming, but also creating user's contents; Canva, which allows users to prepare presentations, posters, business cards, application documents, etc.; and Genially,

which can be used to create interactive presentations or infographics. The second group of tools can be successfully used to verify learning outcomes in addition to adding variety to classes. This includes tools like Wordwall, where students can participate in interactive games like roulette, which can be a good exercise to start with for the group to get to know each other better. The idea of the game is that each student must spin a virtual wheel of fortune/roulette and answer the question that falls on the dial. Other exercises include match-ups (where students have to connect a specific term with its definition from randomly placed tiles) or quizzes (multiple-choice test with a time limit). Many of the exercises allow for rankings, which further motivates students to take action. Other useful tools in this group are Quizizz and Kohoot, where users can create quizzes or polls to find out what students think about a given topic.

It is worth noting that both groups of tools can be used in lectures and classes, but it seems that the first one will be most useful in subjects falling in the area of humanities and social sciences, while the second one will be used wherever there is a need to verify the learning outcomes.

Importantly, these tools are available both in a free version, which gives access to a large number of templates and, according to the authors' experience, is sufficient for the needs of online classes, and a paid version, which allows the use of unlimited resources offered by individual tools.

Lecturers are well aware that maintaining student attention and engagement is often a difficult task when teaching conventional classes, and this problem is further compounded when teaching online. It is worth recalling here, the so-called listener attention curve, presented in Figure 1.

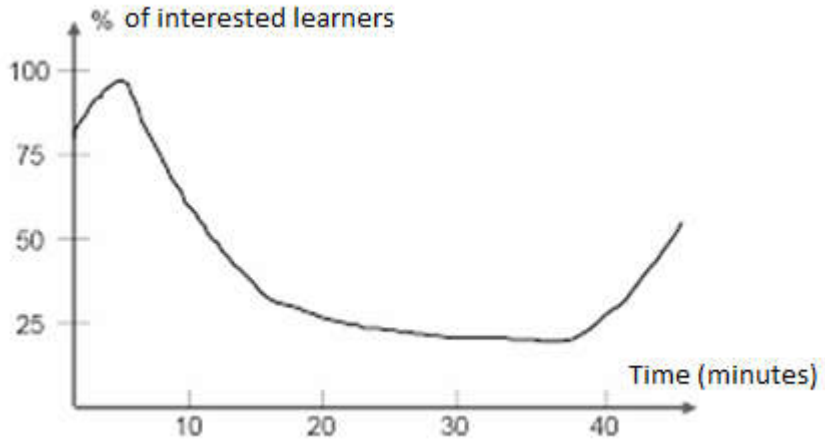


Figure 1 Student attention curve
Source: (Mills, 1977)

It is known that the prerequisite for proper perception during class is to maintain student attention. From the standpoint of human function, class time is divided into what is called periods of activity and low-level activity. Audience interest is highest in the first 10 minutes of class, then wanes before rising again after 30 minutes. In teaching, especially in lectures, the teacher should strive to increase the periods of activity to the maximum while decreasing the periods of inactivity. It is suggested that after 20 minutes or so it may be useful to add some variety to the session by using the tools described above, e.g., taking a short break for an exercise related to the topic of the lecture, a quiz, an opinion poll, or other forms of activity, even though this may increase the length of the session. As already suggested, students in online classes have a great deal of freedom in deciding how, when, and if they will interact with others at all (this is a significant disadvantage of distance education, where lack of physical participation in class results in a lack of engagement). Therefore, in the absence of the possibility of the direct impact of the teacher on the student, it seems reasonable to use different ways to activate the audience. (Ciesielka, 2007).

The tools presented in Table 1, in addition to activating students, engaging them in the learning process or making classes more interesting, also contribute to the development of their competencies. An analysis of the websites of these tools revealed that they promote the development of soft competencies, such as the ability to work under time pressure, resistance to stress, creativity, focus on the goal, emotional intelligence, logical and analytical thinking or communication skills. Examples of these competencies are presented in Table 2.

Table 2 Competencies that are developed through the use of innovative teaching tools

Tool	Developed competence (skills) resulting from the characteristics of the tool
Virtual whiteboards MIRO/MURAL	• Design • Teamwork (collaboration) • Creative thinking • Communication • Persuasive skills • Reaching compromises • Conflict resolution
Canva	• Innovation • Openness to new solutions • Engagement • Motivation to work
Genially	• Positive attitude • Technical skills

cd. Table 2

Wordwall	Technical skills Coping with stress and time pressure Goal focus and task orientation Openness to new solutions emotional intelligence
Quizizz	Ability to learn independently Results orientation Logical and analytical thinking Positive attitude
Kahoot	Good work/learning organization Motivation to learn

Source: author's own compilation based on (Canva, 2021; Genial.ly, 2021; InterviewMe, 2021; Kahoot, 2021; Miro, 2021; Mural, 2021; Quizizz, 2021; Wordwall, 2021)

It is worth noting that most of them refer to the so-called competencies of the future. They make it possible to distinguish human work from that of information systems, robots, or artificial intelligence because humans will still be difficult to replace in these areas. They include:

- cognitive competencies: commonly referred to as thinking competence. It is a very broad term, encompassing creativity, logical reasoning, and complex problem-solving.
- social competencies: they are essential in a work environment that requires contact with others, teamwork, or managing people. These include effective teamwork, leadership, entrepreneurship, and emotional intelligence.
- digital and technical competencies: these are termed hard skills. Digital competencies are particularly important and are becoming fundamental. They are not limited to programming or data analysis, but encompass a wide range of skills from digital problem solving to privacy or cybersecurity expertise (Włoch & Śledziewska, 2019).

Until recently, soft skills were considered "inferior" and less important than hard skills. Today, employers often pay more attention to the former. This is because it is often easier to teach an employee hard skills (related to a specific profession and the substantive knowledge needed to perform it) than to invest in developing their soft skills. Hence, it is very important that students also acquire soft skills during their studies at universities (InterviewMe, 2021)

At the same time, it is worth noting that the literature indicates that e-learning forms of teaching, develop students' competencies, we are talking about cognitive skills that encourage them to learn and direct themselves. Nowadays, global education places a clear emphasis on the development of digital skills (this trend is already observed

at the elementary school education level (Upper Secondary Education Bureau, Ministry of Education, 2010) (Songkram, Khlaisang, Puthaseranee, & Likhitdamrongkiat, 2015).

Parkes, Reading and Stein (2013) also attempted to identify the competencies that students should possess in order to be comfortable in an e-learning environment. Their research revealed that there is a need to develop technology use and social interaction skills. This means that the conscious use of e-learning (including various remote learning tools) in education will promote the development of new competencies among students. It is also worth exploring what these competencies may be. The authors of this work will try to determine whether and what competencies are developed through the use of e-learning tools.

Research shows that creativity can be trained (Corso & Robinson, 2013). It is pointed out that consciously used creative practices in education should support students in building knowledge by defining things that, in their opinion, are particularly important. This strengthens the learners' sense of their own identity and individuality. It also influences the development of learners' personal qualities, e.g. a strong sense of responsibility for oneself and others. New model of education should be based on the deliberate development of learners. The adoption of new strategies and learning models will play a crucial role in the future and will support many of those who did not have enough ideas, required skills. In order to effectively respond to rapid changes in society and work environment, education should provide students with the essential knowledge and practical skills. Therefore, students should be encouraged to think creatively and involved in the creation of case studies through e-learning programs (Radović-Marković et al., 2020).

Distance education comes with some benefits, but also some limitations. Among the advantages are the following:

- e-learning environments can be designed and take into account individual needs to accommodate student differences and preferences, For example, some students need to focus on specific contents or work on additional supporting materials, while others may be ready to complete the entire course at a rapid pace (Akkoyunlu & Soylu, 2006)
- asynchronous e-learning can provide flexibility of time and place, while synchronous e-learning provides the flexibility of place, so each learner chooses when and where it suits them to learn (Al-Musa & Al-Mobark, 2005),

- e-learning can be beneficial both for students, because they do not have to move around, which saves their time, and for an institution such as a university, which can reduce the number of physical classes (Al-Musa & Al-Mobark, 2005), thus reducing the cost of maintaining infrastructure,
- e-learning can provide opportunities for students to interact with each other through, for example, discussion forums while eliminating barriers such as the fear of talking face to face with others in a physical environment, which can arise for students with introverted traits, i.e., closed-minded students with communication difficulties (Hameed, Badii, & Cullen, 2008).

E-learning also has some disadvantages, among which are:

- in e-learning, the student may feel dissatisfied due to isolation and lack of direct social interaction (Hameed, et al., 2008)
- e-learning may have a negative impact on the development of some students' communication skills (Akkoyunlu & Soylu, 2006); (Klein & Ware, 2003).
- e-learning may be less effective than face-to-face classes in terms of aspects of the learning process such as clarifying questionable issues that may be easier to explain during face-to-face contact.
- e-learning may also lack the support provided by non-verbal cues or the ability to observe group interactions (Al-Musa & Al-Mobark, 2005).

The obvious strategy should be to benefit from the positive implications of e-learning while mitigating its negative aspects. One such opportunity would be the development and implementation of blended learning courses, that is, combining distance learning with traditional classroom instruction (Akkoyunlu & Soylu, 2006). However, the COVID-19 pandemic does not always provide such opportunities. During periods of peak incidence rates, universities are operating with full e-learning mode, which, it seems, should prompt conscious reaching for tools that engage students in the learning process.

At this point, it is worth considering what influences the success of distance learning. The research by Selim (2003), who found that the ease of use of online courses is a major factor and a determinant of finding it an effective and efficient learning technology, was considered noteworthy. Selim (2007) described the critical success factors of e-learning in four categories: trainer, student, information technology, and university support. Research shows that the attitudes of students and instructors toward e-learning can determine its success. In general, previous research on e-learning focused more on the technology itself and the contents, but more recent studies have indicated that student attitudes and the ability to interact

in groups also play an important role in the success of e-learning. Analysis of the research in this area clearly shows this changing trend:

- from 2001 to 2003, the focus was on course content and customization.
- from 2004 to 2006, research focused on the usability of e-learning platforms and on the adoption and confirmation of the intention to continue learning
- from 2007 to 2009, the research focused more on student satisfaction levels and e-learning methodology.
- from 2010-2012, the research looked at the expectations and satisfaction of e-learning users.
- from 2013 to 2016, the research is more focused on the overall success of e-learning and how characteristics and student needs and preferences affect e-learning.

This means that there is a need to intentionally influence students' attitudes by providing solutions that meet their expectations of distance learning.

In conclusion, despite the positive changes in education, including distance education often having the nature of innovation, universities still face many developmental challenges. First, teaching is still too focused on attracting large numbers of students to a university without considering the need to develop new strategies for practical skills training. Second, teachers' skills and capabilities have improved, but they still need support to transform their skills into high-quality e-learning materials and diverse learning solutions for their students (Käyhkö *et al.*, 2021).

2. Social innovation in e-learning

Before characterizing social innovation in the context of distance education, it is necessary to look at the definition of innovation itself and what social innovation means.

One of the precursors of the term "innovation" according to Piwowar-Sulej and Kwil (2018) was Schumpeter. This researcher indicated one of the most popular definitions of the term. He identified innovation with the introduction of new products on the market, new methods of production, entry into new markets, acquisition of new sources of raw materials, and introduction of new industrial organization. Carayannis, Gonzalez, and Wetter (2003) proposed a classification of innovation concepts according to four dimensions:

- innovation process (how innovations are developed, disseminated, and adopted);
- content of innovation (technical or social in nature);

- innovation context (the environment in which the innovation emerges and is developed);
- impact of innovation (social or technological): change resulting from the innovation.

As the pace of life in society is accelerating, solving social problems should be quick, efficient, and creative. Therefore, one should find the best solutions using improved or new methods (innovation). Oslo Manual (OECD/Eurostat, 2018) points to four types of innovation:

- product innovation, which means the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, embedded software, ease of use, and other functional characteristics.
- process innovation, which is based on a new or significantly improved method of production or delivery. This category includes significant changes in technology, equipment, and/or software.
- marketing innovation, concerning the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion, or pricing.
- organizational innovation, with its assumptions concerning the implementation of a new organizational method in the firm's business practices, workplace organization, or external relations.

In addition to the above-mentioned typical economic and managerial approaches, innovation also includes psychological and social aspects (Taatila, Suomala, Siltala, & Keskinen, 2006). Therefore, in order to meet the social needs of a given society, this typology should be expanded to include one more concept: social innovation (Skubiak, 2016).

In the characterization of social innovations, an important criterion is timing of the implementation of changes. The time to implement innovative changes can be viewed broadly. Social innovations are then considered to be new and already proven solutions, solutions that have been tested and applied in new geographic areas, and in increasingly broad areas of social activity. The narrow concept of social innovation focuses attention on the first application of innovative change. In practice, social innovations are not limited to the first application of a solution, but take into account subsequent solutions and different places in order to spread them as widely as possible. It seems that the ambiguity of innovation in terms of the time of introduction of changes is justified and does not need to be specified, especially when one has in mind social innovation and its purpose: improving the quality of life of society. Effects of changes as a criterion for social

innovation focus on the outcomes of innovation. They express the results of activities and their forms. They are the result of human activity and the activity of society participating in social innovation processes. First of all, they refer to intentional, purposeful changes in social structures, customs, and lifestyles created by or with the participation of society itself. They can also be viewed as unintended social changes that represent an extra outcome of technological or organizational innovation. In terms of the effect of changes, one can mention soft social innovations, such as changes in the work organization, aimed to improve the quality of life at work, and hard social innovations (technical, technological), also meeting the objectives of social innovation. Furthermore, it is possible to enumerate social innovations with a direct innovation effect, and those with an effect arising from a long innovation process. The effects of changes can be expressed as macro-, meso- and microeffects, depending on their scale of occurrence. Macroeffects are defined as those that occur nationally or more broadly. Mesoeffects are those that occur regionally, locally, while microeffects serve small groups of people or even are single applications. In general, it can be assumed that the effects of all social innovations contribute to the quality of life. This occurs regardless of the magnitude of these effects and whether they occur directly or not, in an intended or unintended manner (Olejniczuk-Merta, 2013).
Moulaert, Martinelli, Swyngedouw and Gonzalez (2005) highlighted three basic dimensions of the social innovation concept:

- Meeting human needs that are not currently satisfied because "not yet" or "no longer" is perceived as important in the market or state (content/product dimension);
- changes in social relations, especially in relation to management also increase the level of participation of all groups (especially poor) in society (process dimension);
- increased opportunities and socio-political access to resources (empowerment dimension).

As reported by Skawińska, Sobolewska-Poniedziałek and Zalewski (2014) the goal of social innovation is to better meet the needs of the region: local communities, businesses, and organizations. Furthermore, the authors created their own approach to the innovations described. They indicated that innovations:

- are initiated from the bottom up by various entities (e.g., academic sector, businesses, nonprofit organizations, local governments, etc.) and require coordination by a leader,

- satisfy, in a new way for a community, the identified need of the population, not previously realized, through better use of factors of production, creating new value for the actors,
- result in increased social capital (trust and other attributes) and the development of civil society.

The previously described issue of e-learning implementation at universities can therefore be matched with issues related to social innovations: online classes were initiated by an entity such as a university and coordinated by a faculty manager in order to sustain the implementation of the teaching process, thus satisfying the need for student education. This was possible through the use of e-learning tools, which simultaneously contributed to the development of soft skills among students.

However, in order to better understand the concept of social innovation, one must look at the different types of innovation. An interesting classification was presented by Wronka-Pośpiech (2015), who identified seven different types of social innovation. These are presented in Table 3.

Table 3. Classification of social innovations

Types of social innovations	Characteristics
New products	These are any products/goods that can support communities (including people with disabilities) in various activities. In relation to online education, it can be the use of innovative tools to support the learning process and increase its attractiveness. These could be tools for teamwork, creative work or student opinion surveys.
New services	These include services that can be received without leaving home. In case of universities, these will be e.g. virtual exercises, lectures or seminars.
New processes	These include activities designed to support the activities of various groups in society through appropriate processes. A good example in relation to online learning can be sharing documents for collaborative work which develops and improves the process of collaborative knowledge creation and sharing.
New markets	These are new markets, undeveloped so far, that meet social needs. In relation to universities, it can be the creation of so-called "time banks".
New platforms	These are various online platforms that can support and facilitate activities of communities. In online learning, platforms can be used which enable the implementation of the teaching process, real-time communication, etc.
New organizational forms	These include, for example, new businesses, social impact initiatives. In the academic environment, these can be employee initiatives to support team development, collaborative learning, exchange of knowledge and experience.
New business models	These include various new entrepreneurial strategies used in the context of social challenges. A good example could be a new approach to individual or organizational learning and development that promotes training related to student/teacher needs, is easily accessible exactly when and how it is needed.

Source: author's own elaboration based on (Wronka-Pośpiech, 2015)

The social innovations presented in Table 3 are new solutions (products, services, models, markets, processes, etc.) that simultaneously meet societal needs more effectively than before and lead to new or better opportunities and dependencies and better use of assets and resources. These innovations can be both intentionally planned, in order to achieve measurable benefits, and forced, resulting, for example, from an urgent necessity.

Social innovations in education occur through the implementation of a new or significantly improved product (educational goods or services), process, working method, or new organizational method (form) in educational practices in the workplace or in the relations of educational institutions with their environment. Innovations of this type may involve the entire education system or its components (Vincent-Lancrin et al., 2019). An example worth citing here was described by Chen and Roldan (2021). The term in which the COVID-19 pandemic emerged for the Innovation Farm project they described brought many changes, as the pandemic had a huge impact on every individual and every aspect of society. The students began working on Android applications based on artificial intelligence to solve social problems in January 2020. As of mid-March, when the class moved online and the pandemic became more imperative, they adopted a modified version; namely, to create Android applications based on artificial intelligence to solve important social problems related to COVID-19. Students quickly transferred the social issues they began working on (such as financial insecurity, health, transportation, environment, and education) to the COVID-19 context.

Today, there are serious concerns about whether digital innovations based on new technologies and globally available data can provide inclusive and sustainable development opportunities for people and communities. It is important to ensure that the digital divide, which was witnessed during the COVID-19 pandemic, is reduced by actions at multiple levels, such as politics, institutions, education, research, and workforce initiatives. In the digital age, one should not be content with just advances in data and technology, but seek to transform these resources into social innovations that stimulate growth and improve the well-being of people and the planet. At its best, sustainable innovations emerge from the rapidly evolving interface between the technological potential and the emerging needs of societies, which is related to social responsibility. Therefore, solutions are urgently needed to meet this challenge (Käyhkö *et al.*, 2021).

According to Abhari *et al.* (2020), social responsibility lies at the heart of modern information systems (IS) education because of the increased public attention to the ethics, human factors, and social consequences of emerging technologies. The authors, noting these issues to implement social innovation based learning in IS programs, proposed (as shown

in Figure 2) in the form of a model, four interrelated learning strategies: social exploration, social ideation, social experimentation, and social validation.

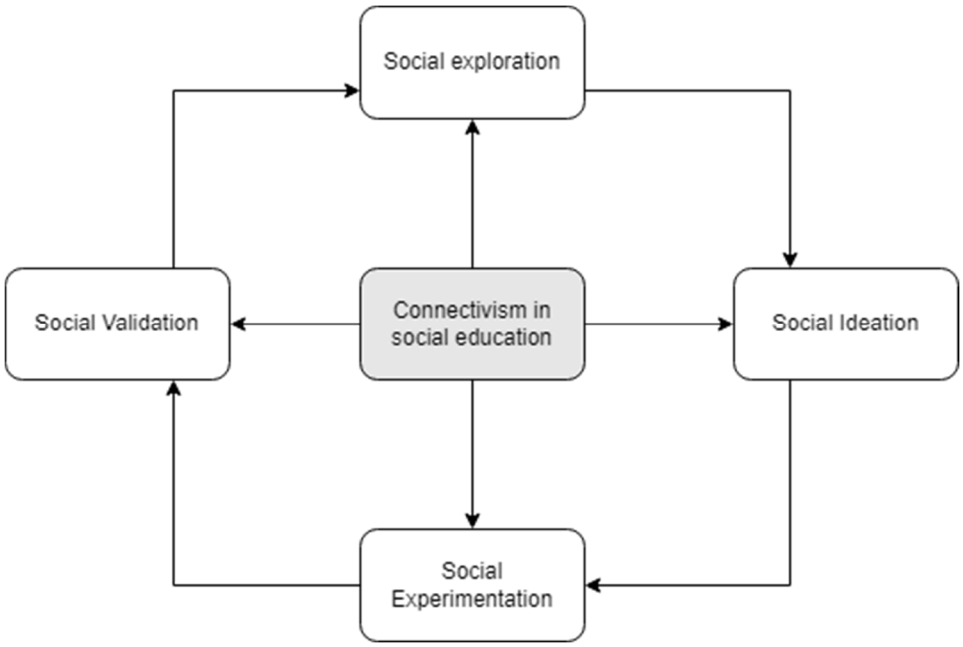


Figure 2. Connectivist Social Learning Model
Source: Author's own study based on: (Abhari et al., 2020)

The social exploration presented in Figure 2 is the first stage of connectivist learning, in which students investigate problems and gather knowledge to shape the next stage of social ideation. These ideas allow students to combine different disciplines and subjects and engage in proposing potential solutions to existing and emerging social problems. During the social ideation stage, students brainstorm different strategies to come up with a set of possible solutions, using the knowledge they acquired during social exploration. The purpose of social ideation is to develop possible solutions to a specific authentic learning problem. Students can compete to propose better solutions while working together to critically analyze their own or others' ideas. Next, social experiments allow students to predict and develop different aspects of solutions by testing and evaluating hypotheses in a social environment. The goal of this phase is to apply the knowledge gained from social exploration, critical analysis, and feedback from social ideas to evaluate solutions and develop a plan. Instructor support helps students determine the validity of their solutions through formative assessments and collaborative discussions. The final phase that follows social experimentation is social validation,

in which students publicly present their experimental results and solicit feedback from community members and experts in the field. Opening up to critical feedback is an absolute necessity for scientific progress (Abhari et al., 2020). The strategy presented by the authors shows important social issues that should be addressed during distance education. Students, through social exploration, can analyze the problems that occur and accumulate knowledge. Social ideation enables them to apply the knowledge they have gained and to stimulate creative and innovative thinking. Social experimentation provides opportunities for students to develop, among other things, logical and analytical thinking by creating and testing hypotheses and research questions in a social setting. The final stage, social validation, allows students to be more open-minded, communicative, and work in teams. This model, therefore, enables the creation and improvement of soft competencies. Furthermore, communities can also contribute to scientific design and funding, going beyond the passive role of merely adopting innovations developed by scientific experts. The overall success of developing countries is based on building effective links between the education ecosystem and social innovation and the bioeconomy. To this end, e-learning ventures and virtual biotech labs are innovative initiatives that are rapidly transforming societies in developing countries. Efforts in distance education, e-learning, and open learning are certainly beneficial to resource-constrained developing countries where the number of potential students is far greater than the number of experienced teachers and educational institutes that can provide the required infrastructure for basic and advanced scientific education (Ray, Srivastava, Diwakar, Nair, & Özdemir, 2016). In addition, it is also worth paying attention to the future competences of students. It was done by Ostoj (2018). In her research attempted to determine the motivation to take up gainful employment by students of economic studies during their education - in the context of financial and non-financial criteria. Therefore, it is worth looking at social innovation in the context of distance education because it addresses the needs of all participants in the learning process.

Methodology

The research procedure adopted in this study was based on the information gathering techniques such as secondary data analysis and primary data analysis. In the first, a literature survey was conducted to analyze both domestic and foreign literature. Analysis of primary data included a questionnaire survey and free-form interviews. The empirical study was therefore both quantitative and qualitative in nature.

A proprietary online survey was developed for the study. The survey was created in MS Forms application. A total of 151 students studying

at the Faculty of Production Engineering at the Wrocław University of Economics and Business, Poland, were surveyed. The respondents in the study group included both women, who constituted 66%. respondents, and men (34%). The group analyzed was people aged between 21 and 28 years, The respondents were sophomore full-time students (54%), and part-time students (46%). The study group included both economically active students (76%) and non-working students (24%). The study period was during the summer term 2020/2021.

The questionnaire contains three types of questions, i.e. closed-ended questions with suggested answer options, semi-open questions in which the respondent, in addition to choosing the prepared answer options, is allowed to provide his/her own answer, and conjunction questions which allowed the respondent to choose more than one answer, along with a rating scale of "definitely not", "rather not", "neither yes nor no", "rather yes", and "definitely yes". The answers to the questions were shown graphically and descriptively. MS Excel was used to analyze the data.
The study sought to answer the following questions:

- Q1: What was the level of familiarity with each tool among students before and during the outbreak of the pandemic?
- Q2: Did the distance learning support tool used contribute to the development of new competencies among students?
- Q3: What competencies did students develop by working with distance learning tools in their online classes?

Free-form conversations with students allowed the information gained from the surveys to be complemented. These included the respondents' assessment of distance learning at the university, their needs in relation to the teaching process, and perceived problems.

Findings

With reference to the purpose of this article, first of all, an attempt was made to recognize the manifestations of social innovations at the Wroclaw University of Economics during the COVID-19 pandemic. It should be pointed out that the university studied had some previous experience with distance learning. However, it treated them as a complement to the teaching process carried out in a conventional manner. Before the outbreak of the pandemic, some classes were taught in an asynchronous form of e-learning using the Moodle platform. However, the pandemic situation necessitated the implementation of the solutions that had not previously been implemented at the university, indicating that forced innovations took place here to sustain the teaching process. It became necessary to find such solutions that would allow synchronizing

the subsequent class dates and the implemented teaching content with the schedule of the academic year, allowing students to complete the curriculum in real time.

During the research, an attempt was made to determine, with reference to the classification of social innovations presented in Table 3, their manifestations in the analyzed university, i.e. what innovative products, platforms, processes, etc., were used by the teaching staff during classes.

The university, after moving entirely to a distance learning form of teaching and meeting, has offered new services such as online classes and training. They concerned mostly the transformation of exercise classes, including those conducted in laboratories or physical education classes, into an e-learning form. University staff, therefore, had to be quickly trained to meet student expectations for classes using this mode. They also had to adapt online materials and assignments to make them accessible and understandable to everyone by sharing the materials in e.g. Share Point (new processes). This provided an opportunity for collaborative teamwork both between students but also between students and teachers. This allows everyone to create a single document while seeing content being entered or modified in real time. Furthermore, new innovation processes here were related to the use of new forms of examinations (e.g., via MSForms or Moodle). Both tools offer the options to create both test-based and descriptive exams.

It is worth pointing out that soon after the announcement of the necessity to close the university, a support group (a new organizational form) was established at the analyzed university on the initiative of one of the employees. At first, a detailed user manual for the new MS Teams platform (new platforms) was developed, and then a channel called "online teaching support" was created, where each employee could share their insights, report emerging problems, etc. At the same time, the university provided employees with the opportunity to participate in training courses on the use of selected distance teaching tools. During the first lockdown, training on the use and operation of Miro and Mural virtual whiteboards was organized. As interviews with academics revealed, a large group of them attended the workshop.

This was followed by an attempt to identify innovative products used during distance learning (Q1). As can be seen in Figure 3, prior to the pandemic, the software most frequently used by students was Canva (52%), Kahoot (46%), and Quizizz (41%). In contrast, the least popular tools were Genially (1%), Mural virtual boards (4%), Wordwall (11%), and Miro virtual boards (12%). As indicated by the respondents during distance learning, the lecturers most often used Miro virtual whiteboards (46%). It is worth pointing out that the widespread use of Miro was due to the fact that employees participated in a training organized

by the University of Economics on the use of these boards and the possibility of their use during classes. The training and the functions of this tool proved to be so useful in making the classes more attractive that the teachers willingly used this solution. As it results from the description of Miro boards functionality, they allow many users to work at the same time: everyone can actively participate in creating the architecture diagram, add their ideas, or make comments. It is a very important tool for distance learning, also when teaching only online (as it is now, after the COVID-19 pandemic outbreak), because the whiteboard allows the class participants not only to work in a group but also to get to know each other - the students often came from different towns, universities (if they had studied before) and mostly did not have the opportunity to get to know each other in person. As this type of board allows everyone to work in a group at the same time, it fosters students' interpersonal relationships and prosocial behavior (e.g., cooperation).

The lower indications for tools such as Kahoot, Canva, and Quizizz seem to be due to their limited field of use, reduced mainly to quizzes.

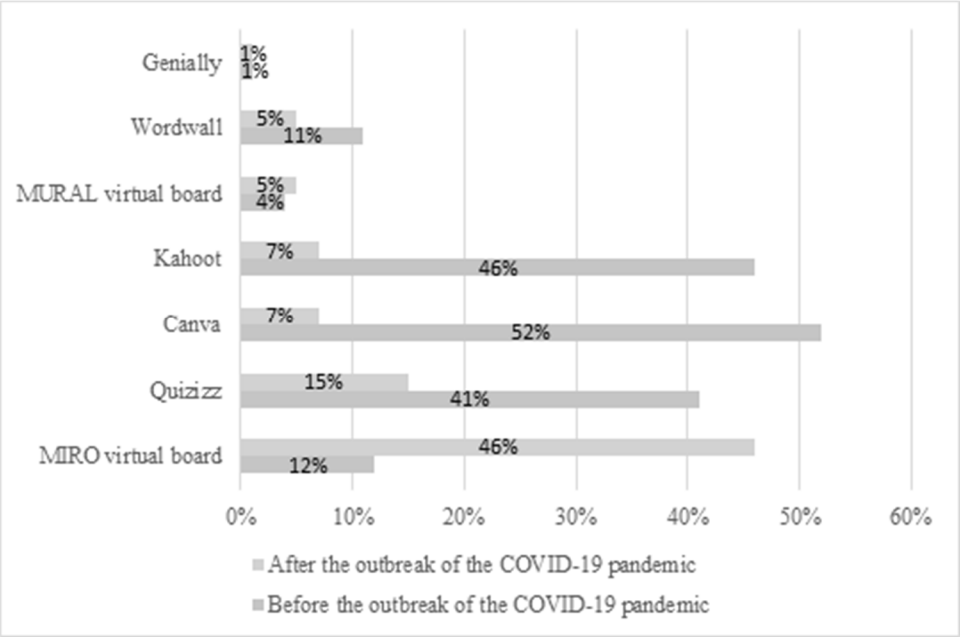


Figure 3. Degree of familiarity with distance learning tools before and during the COVID-19 pandemic
Source: author's own elaboration

The study further sought to find whether the use of a variety of innovative tools during online classes contributes to the development of additional skills among students. Figure 4 shows that some of these tools did indeed enable such development (Q2). According to the respondents, these included Miro (27% definitely yes/rather yes), Quizizz (about 18% definitely yes/rather yes), and Canva (17% definitely yes/rather yes).

Bodnenko, Kuchakovska, Proshkin, & Lytvyn, (2020) suggest that a virtual digital board (like MIRO) is a convenient instrument for cooperative student learning, that allows students, even at a distance from one another, to combine text, images, videos, audios, etc. in one interactive format. The authors came to similar conclusions: virtual boards act as an effective means of realization of various forms of conducting classes (web competitions, interactive games, quizzes), allow to organize student surveys and carry out reflection, expand opportunities for research work of students, consulting. It should be noted that the use of virtual digital boards in the educational process promotes the formation of students' ability to work independently with different sources of information, allow to immediately see the result and evaluation of their work through the ability to respond quickly to the participants of one board or giving access to their board.

Interesting insights on the use of Canva in teaching were provided by (Bondarenko et al. (2020) . The authors indicated that this application can contribute to the effective acquisition of geographic knowledge (but also knowledge in any other field) in higher education. The researchers pointed out that in the long term, cloud technologies (such as Canva) should become a valuable educational tool for creating virtual information and learning environments connected into a shared national and then global learning space. Furthermore, these researchers stressed that the generation of students who cannot live without modern devices should learn to use them rationally rather than be deprived of them.

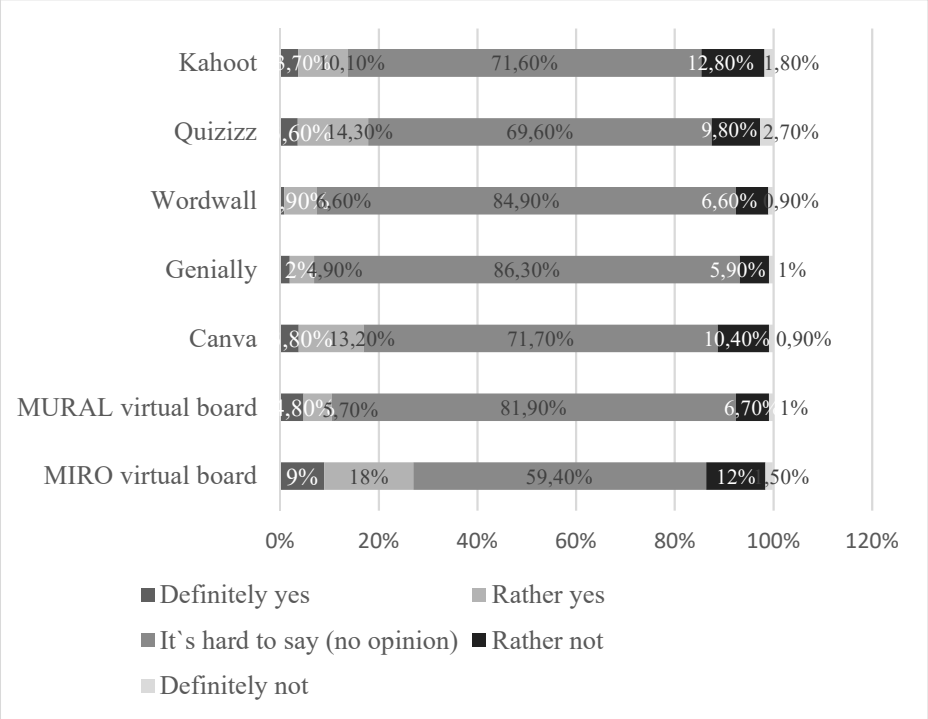


Figure 4. The impact of distance learning tools on the development of employee competencies
Source: Author's own elaboration

The answers received correspond with those obtained for the question of what competencies the students developed by using distance learning tools (Q3). Among these competencies, the respondents mentioned teamwork, which develops perfectly when working on virtual whiteboards, and creative thinking, which can be developed by designing in Canva. These competencies are extremely important because face-to-face meetings are missing when classes are taught only online. Developing soft skills allows students to not only perform efficiently in their classes but also adapt to new situations such as getting a job during or after their studies. Furthermore, the teamwork and creativity indicated by the respondents can be helpful in making connections, training to be more confident in expressing opinions, or being more open to change (see Figure 5).

Poce, Agrusti and Re (2017) confirmed the above results regarding the development of soft skills during distance learning. The authors highlighted the use of the Orbis Dictus platform as part of the "Writing Methods and Techniques in Education" module taught at Roma Tre University, Faculty of Education. They showed that the use of such

techniques enabled students to work in a flexible and dynamic environment that supported the teaching pathway by providing all the necessary tools. The use of the group e-learning process and essay co-writing activities, continuously supervised by the e-tutor, required strong coordination among the students, resulting in stronger support from the participants in the presented classes, mainly due to the motivational expectations of the group peers. The cooperative mode of learning and working was actually accepted by the students from the very beginning. This has led to very good results in terms of participation and work organization and, as the findings show, in terms of product quality. Students were able to cope with the core elements of their learning pathway: creative storytelling and technical/scientific language. The use of such material proved to be important both in the initial phase in which students were introduced to the proposed contents and in the final phase of the actual written performance of the original story.

Maatuk et al. (2022) addressed similar issues in the context of e-learning - they examined the challenges and possibilities of implementing distance learning at universities from the perspective of students and lecturers. For this purpose, they surveyed students and lecturers of the Faculty of Computer Science at the University of Benghazi in Libya. Research has shown that the implementation of the e-learning system in education has a positive effect on increasing the effects of education, but negatively on social relations both between peers as well as between students and lecturers due to long-term isolation from society. In addition, researchers found that the learning burden is primarily on students rather than faculty, and this is seen primarily as a disadvantage. Other very significant disadvantages include the lack of Internet access at the university and - very important for this study - the lack of experience of students in the use of e-learning tools in education. It is also worth emphasizing that, according to the academic teachers who took part in the study, e-learning is beneficial for students, as it helps to develop their technological skills and competences of the future.

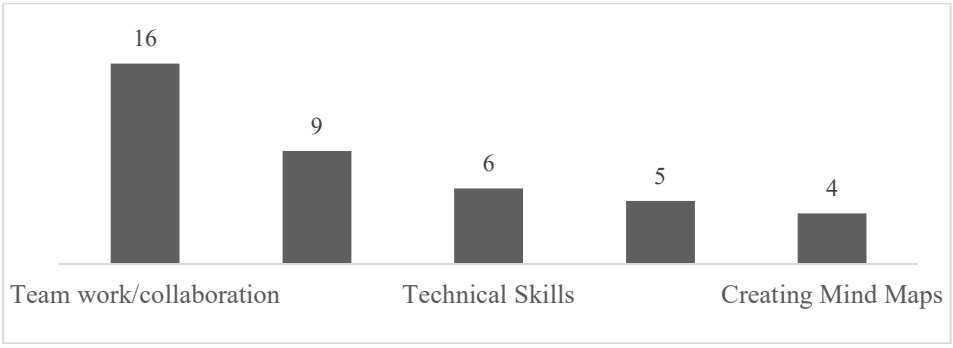


Figure 5. Competencies that students developed using distance learning tools
Source: Author's own elaboration

The survey also asked students if they would use these tools in the future (see Figure 6). The most indications were found for Miro boards (52%), Canva (37%), with slightly less frequent indications for Quizizz (28%) and Kahoot (27%). The high popularity of Miro seems to be, besides the fact that they were eagerly used by teachers in their classes, due to the fact that it is a tool commonly used in business (see Figure 6). Therefore, using the Miro board in class provides an opportunity to prepare students for their future work. Their ability to use the tool is not only related to the accumulated knowledge, but also to increased self-confidence, which positively impacts both student-teacher and graduate-employer relationships.

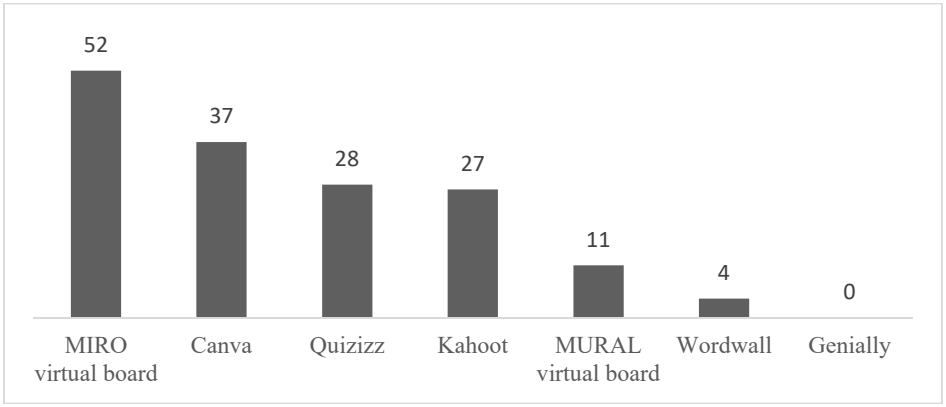


Figure 6. Tools that students will use in the future
Source: Author's own elaboration

Quiz tools can also be used in business settings during, for example, casual staff meetings or training sessions. Implementing such tools in business can sometimes be difficult to accept for employees who consider them unnecessary. However, it seems that using quiz applications can make standard multimedia presentations more attractive. Using these tools in the teaching process can support acceptance and show opportunities for future use as well.

Similar results were obtained by van den Berg and Verster (2020) who addressed a Design-Based Research (DBR) initiative where students in an Information Systems (IS) module proposed social, digital innovations for complex problems within marginalized communities in Cape Town, South Africa. The goal of their project was to develop digital innovations that recognize agency traits in communities through life experiences and local knowledge. IS students' projects emphasized empathy, storytelling, and prototyping as part of the design thinking process. The outcome of the research was the development of competencies in team problem solving and ultimately the creation of transdisciplinary knowledge.

The same observations were made by Abhari *et al*. (2020) who demonstrated in their research that the IS teaching model based on the "Connectivism" learning paradigm (a theory of teaching: learning in the digital age), can help students not only see information systems as social systems but also consider them as catalysts for positive change. The results also confirmed the positive impact of the model on students' social skills. This study contributes to the future of IS education by proposing social innovation-based learning as a practical education paradigm for the digital economy.

Based on Table 3 presented in the theoretical part describing the types of social innovations and the results of empirical research, the characterization of their manifestations in the university studied was made and proposals for improvement that could be successfully implemented in distance education not only during the COVID-19 pandemic but also permanently during e-learning classes were presented. The second column of the table summarizes the results of the empirical research showing the identified social innovations, while the third column shows the desired directions of change (see Table 4)

Table 4. Types of social innovations diagnosed at Wrocław University of Economics and Business and desired directions of improvement

Types of social innovations	Social innovations identified at Wrocław University of Economics and Business	Proposals for using social innovations that have not yet been used
New products	Using tools such as: Canva, Quizizz, Kahoot, and, after the outbreak of the pandemic, Miro boards.	• Using other innovative tools when teaching online classes e.g. interactive presentations created on the Genially platform. • Creating assignments for class in an interactive format such as on a Wordwall site.
New services	• Conducting virtual exercises, lectures, seminars, selected labs, and even physical education classes. • Organizing online conferences.	• Training students and staff on e-learning tools
New processes	• Sharing documents for peer-to-peer knowledge editing/sharing (Share Point). • Using new forms of examinations (e.g., via MS Forms or Moodle).	• A new form of examining students: by creating quizzes e.g. on Genially, Kahoot or Quizizz
New markets	• N/A	• Creating time banks at colleges and universities.
New platforms	• Use of the MS Teams platform for classes and communication with students.	• Use of subject-assigned platforms by lecturers at the university, e.g., biznesplan.io platform.
New organizational forms	• Online teaching support	• Creating associations/foundations to support remote learning at universities.
New business models	• N/A	• Application of the just-in-time learning method.

Source: author's own elaboration

The social innovations shown are but part of the options that can be implemented at the university. It would be worth developing them and implementing new ones to make the university's educational services more attractive. The authors noted untapped potential in each of the innovation types shown in Table 4.

In the case of new products, the Genially tool should be emphasized, although it was very rarely indicated by students as being used in classes

both before and after the outbreak of the COVID-19 pandemic. This tool can be used not only to create presentations, but also infographics, gamification, creating activities from quizzes to escape rooms filled with interactivity and animations, interactive digital guides, and interactive images enriching them by creating layers of text, audio, or video recordings. Genially allows users to create interactive materials for their classes, but also to examine students (new forms of examinations) and make classes more interesting with additional features not found in other tools. Using it in the classroom can support teaching but also foster creativity, innovation, engagement, and collaboration with others among students.

Creating assignments for classes in an interactive form, e.g. on a Wordwall page, is a very interesting solution from the point of view of adding variety to the classes with additional visual elements. The use of roulette in practicing, for example, transformational thinking among students can result, as with Genially, in creativity and ingenuity. Such a practice can also be used to increase communication and foster interpersonal relationships among students, e.g. by asking questions about a person's hobbies or favorite movies, a person can open up and tell more about themselves than if they were to introduce themselves in a normal way.

Alqahtani & Rajkhan (2020) found that success factors in e-learning teaching are related to technological knowledge management, leadership support, increased student awareness of the use of e-learning systems, and the high level of information technology required by instructors, students and universities. Researchers indicated that no matter how great the technology is, e-learning readiness continues to play a leading role in improving the educational process. Moreover, Blended Learning was the most preferred e-learning system among the five methods discussed in this study (other methods studied: traditional teaching, flipped classroom, synchronous and asynchronous learning). The results of this research provide useful information for university managers in the process of implementing modern technologies in e-learning education.

In case of new services, it would be worth thinking over the issues related to training students in the use of e-learning tools: it is possible to create a new teaching subject that would concern such issues, because very often there is not enough time for the tutors to complete the curricula tasks during teaching the subject along with training in the use of the e-learning tools. Furthermore, lecturers, in addition to being trained in the technical use of the tools, could be trained in how to adapt the tools and their functionalities to the subject taught.

In addition to the above-mentioned Genially, an interesting form of examining students could be the use of quiz tools such as Kahoot. The use of such a quiz, in which all participants answer at the same time,

in addition to issues related to the attractive form of the exam, triggers a feeling of healthy competition in the participants. In the case of new markets, which were not previously identified, the university could create a "time bank" that allows for sharing free time, knowledge, and skills among students and academics at both domestic and foreign universities (on a shared resource basis). The time bank, therefore, provides many opportunities for collaboration and the exchange of ideas between users. Furthermore, it can serve as a place to solve problems, including those of a social nature.

A great opportunity for developing social competencies is to implement new platforms assigned to individual subjects. One of these might be the biznesplan.io platform where class participants can create their business plans throughout the term and the lecturer can monitor the progress of their work. This platform develops communication in the group that creates the business plan and instills the rules of social life, e.g. social intelligence.

In the case of new organizational forms, it is worth noting the creation of foundations which will support distance learning at universities, e.g. by increasing access to IT equipment and e-learning tools (addressed to both students and lecturers).

The last item in the table, new business models, can be linked to the application of just-in-time learning concepts to meet the needs of the organization towards the learning style of the graduates it employs. This primarily involves developing skills in acquiring tailored knowledge that is readily available exactly when they need it.

Vujovic and Parm Ulhøi (2008) reviewed the websites of 20 universities selected from a pool of internationally ranked institutions to analyze such projects in the context of social innovation implementation. Of these, seven universities were located in North America, Europe and Asia, seven in Latin America, and six in Mexico. The analysis was qualitative and inductive in nature. All websites reviewed contained information related to COVID-19, such as sanitation measures, recommendations, news, and university guidelines. They also included information about social innovation projects organized by these universities. The identified projects were divided into four areas: research, including projects related to vaccine development and treatment; education, including digital systems ensuring academic continuity and public education programs; technology used in team development projects and strategies; and innovation, with holistic proposals for emotional, physical, and psychological care and well-being. Several projects have used technology tools to address various complexities of health constraints, resulting in digital social innovations.

Ostoj (2018) indicated that the largest percentage of respondents considered the level of remuneration to be the most important criterion for accepting a job offer. The study included students of economics

at the Faculty of Economics of the University of Economics in Katowice (Poland). The second most frequently assessed criterion was the ability to develop new skills and competences. This study suggests that the ability to apply knowledge gained during studies was less important for students than developing skills and competences in new fields – like a social innovations. This suggests that developing competences among students may motivate them to act. Thanks to such conclusions, it is possible to notice the growing importance of non-financial motivational factors at work.

The research results and research by other authors presented in the work show how important it is to develop social competences - including social innovations of students.

Conclusion

The article substantiates the importance of using e-learning tools to organize students' cooperative learning in the conditions of distance education (social distance).

Our study aims to contribute to the literature on social innovations in e-learning teaching. Hence, the article provides an overview and discussion of social innovations in distance learning at a higher education institution. A literature study was conducted on social innovations, e-learning, and the possible tools that can be used to support this type of education. Tables 1 and 2 present the characteristics and functionalities of each tool, respectively, and their impact on the development of new competencies in students. This concerns soft competencies, which refer to the competencies of the future which are popularized today. Table 3 presents the types of social innovations. These may be new products/goods that assist the community (including people with disabilities) in various activities or new services that can be obtained without leaving home.

The social innovations analyzed in this paper were innovations forced by the epidemiological situation related to COVID-19. In order to sustain the learning process, the analyzed university decided to introduce distance education. During online classes, lecturers most often used Miro virtual whiteboards, which stimulate collaborative work. They allowed students to work in real-time and teachers to monitor their progress. The study revealed that the use of these tools had a positive impact on the development of new competencies in students. Among these competencies, the respondents mentioned teamwork, which develops perfectly when working on virtual whiteboards, and creative thinking, which can be developed by designing in Canva. This seems to be a value

in itself as these competencies can be helpful in establishing contacts, expressing opinions accurately, or developing openness to change. Students declared that they would use Miro boards in the future because this tool is commonly used in business. It is worth pointing out that the staff at the university studied were trained in the use of these boards, and a large group of them successfully used them in their classes. It can be assumed that training in the use of other innovative tools would also be enthusiastically received among the teachers and subsequently used in their classes. This would undoubtedly improve the quality of teaching and offset the problem of limited student engagement in class.

This study also contributes to empirical research. In addition to the diagnosis of social innovation in the surveyed companies related to, among others, the introduction of new products (i.e. distance learning tools, such as Miro, Canva, Quizizz, Kahoot), new services (i.e. virtual exercises, lectures, seminars, selected laboratories, and even physical education classes), or new platforms (MS Teams, MS Forms), the desired directions of improvement were also proposed, e.g. the creation of time banks, or the creation of associations/foundations that support distance learning at universities. The results obtained can be both useful for academics and beneficial to universities by implementing social innovations in the teaching process. Knowledge and use of e-learning tools may also be important for entrepreneurs: with new competencies, graduates can be more "attractive" in the labor market.

However what the , Stecuła & Wolniak (2022) stated showed that overcoming technical and social problems largely determines the effectiveness of the use of e-learning in teaching at the higher education level. It should also be noted that not all fields of study are suitable for e-learning in the same way. The respondents indicated that the difficulty in teaching practical subjects is a particularly important problem. While there are no major difficulties in teaching theoretical subjects with the use of e-learning, effective e-learning is difficult to implement in the case of skills and practical subjects. Research results suggest that after the end of the COVID-19 pandemic, practical courses / subjects should be taught in the traditional way, while e-learning can be used to teach theoretical subjects. Such an approach may allow universities and students to take advantage of the advantages of e-learning, i.e. reduce travel costs and time, and offer effective study of practical skills without losing the quality of education.The research showed that there are few studies addressing the issue of social innovation in the context of e-learning and distance learning tools presented. This is a new problem, thus contributing to science while addressing current issues related to society's adaptation to virtual reality in the teaching process. Therefore, future research will include conducting similar but more in-depth analyses on a larger scale, including

subsequent university years and other majors. It seems that gathering a broader research material will allow using statistical analyses that will confirm the statistical significance of the results.

Furthermore, conducting further research towards the identification of interactive learning tools and their impact on the development of competencies of students can make an important contribution to making recommendations that may prove helpful in meeting students' learning needs but also improving their learning satisfaction rates. This also seems important given the need to equip students with the skills and knowledge to help them successfully enter the workforce.

References

1. Abhari, K., Koobchehr, F., Huxford, C., Kohsuwan, P., Olivares, F., & Sosa, L. (2020). Redefining education in the digital economy: The role of social innovation-based learning in information systems education. *26th Americas Conference on Information Systems, AMCIS 2020*, 1–10.
2. Aboagye, E., Yawson, J. A., & Appiah, K. N. (2020). COVID-19 and E-Learning: the Challenges of Students in Tertiary Institutions. *Social Education Research*, *2*(1), 1–8. https://doi.org/10.37256/ser.212021422
3. Akkoyunlu, B., & Soylu, M. Y. (2006). A study on students' views on blended learning environment. *Turkish Online Journal of Distance Education*, *7*, 43–56.
4. Al-Fraihat, D., Joy, M., Masa'deh, R., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior*, *102*(August 2019), 67–86. https://doi.org/10.1016/j.chb.2019.08.004
5. Al-Musa, A., & Al-Mobark, A. (2005). *E-learning the fundamentals and the implementations*. Datanet.
6. Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, *25*(6), 5261–5280. https://doi.org/10.1007/s10639-020-10219-y
7. Alqahtani, A. Y., & Rajkhan, A. A. (2020). E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives. *Education Sciences*, *10*(9), 1–16. https://doi.org/10.3390/educsci10090216
8. Bodnenko, D. M., Kuchakovska, H. A., Proshkin, V. V., & Lytvyn, O. S. (2020). *Using a virtual digital board to organize student's cooperative learning*.

9. Bondarenko, N., Gokhberg, L., Kovaleva, N., Kuznetsova, V., Ozerova, O., Sautina, E., & Schugal, N. (2020). *Education in Figures* (M. Borovskaya, L. Gokhberg, & Y. Kuzminov (eds.)). National Research University Higher School of Economics (HSE).
10. Canva. (2021). *Co zaprojektujesz?* https://www.canva.com/pl_pl [Date accessed: 09.09.2021]
11. Carayannis, E. G., Gonzalez, E., & Wetter, J. (2003). The Nature and Dynamics of Discontinuous and Disruptive Innovations from a Learning and Knowledge Management Perspective. In *The International Handbook on Innovation* (pp. 115–138). Elsevier. https://doi.org/10.1016/B978-008044198-6/50009-7
12. Chen, Y., & Roldan, M. (2021). Digital Innovation during COVID-19: Transforming Challenges to Opportunities. *Communications of the Association for Information Systems*, *48*, 15–25. https://doi.org/10.17705/1CAIS.04803
13. Ciesielka, M. (2007). *Co sprawia, że wykład (wykładowca) jest dobry?* https://doi.org/10.13140/RG.2.1.2493.3286
14. Corso, R., & Robinson, C.-H. (2013). Enhancing Creative Thinking Abilities through the use of Social Media. *International Journal of Knowledge, Innovation and Entrepreneurship*, *1*(1–2), 92–105.
15. Genial.ly. (2021). *Creating interactive content is easy*. https://genial.ly/ [Date accessed: 09.09.2021]
16. Hameed, S., Badii, A., & Cullen, A. J. (2008). Effective e-learning integration with traditional learning in a blended learning environment. *European and Mediterranean Conference on Information System*.
17. InterviewMe. (2021). *Kompetencje miękkie i twarde: lista 30+ umiejętności [przykłady]*. https://interviewme.pl/blog/umiejetnosci-miekkie-i-twarde?utm_source=google&utm_medium=&utm_campaign=16719699561&utm_term=&network=x&device=c&adposition=&adgroupid=&placement=&utm_source=google&utm_medium=&utm_campaign=16719699561&utm_term=&network=x&device=c&adposition=&adgroupid=&placement=&gclid=EAIaIQobChMI47DSr7ej-wIVXEeRBR3jJgUKEAAYASAAEgKfQfD_BwE [Date accessed: 09.09.2021]
18. Kahoot. (2021). *Make learning awesome!* https://kahoot.com/ [Date accessed: 09.09.2021]
19. Käyhkö, N., Mbise, M., Ngereja, Z., Makame, M. O., Mauya, E., Matto, G., Timonen-Kallio, E., & Rancken, R. (2021). Social innovations in Geo-ICT education at Tanzanian universities for improved employability (GEOICT4E). *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, *XLVI-4/W2-*, 83–89. https://doi.org/10.5194/isprs-archives-XLVI-4-W2-2021-83-2021
20. Khan, B. (2005). *Managing e-learning strategies: Design, delivery, implementation and evaluation*. PA: Idea Group Inc.

21. Klein, D., & Ware, M. (2003). E-learning: New opportunities in continuing professional development. *Learned Publishing*, *16*, 34–46.
22. Maatuk, A. M., Elberkawi, E. K., Aljawarneh, S., Rashaideh, H., & Alharbi, H. (2022). The COVID-19 pandemic and E-learning: challenges and opportunities from the perspective of students and instructors. *Journal of Computing in Higher Education*, *34*, 21–38.
23. Meyen, E., Aust, R., Gauch, J. M., Hinton, H. S., Isaacson, R. E., Smith, S. J., & Tee, M. J. (2002). E-learning:Aprogrammatic research construct for the future. *Journal of Special Education Technology*, *17*, 37–46.
24. Mills, H. R. (1977). *Techniques of Technical Training*. Macmillan International Higher Education.
25. Miro. (2021). *Product*. https://miro.com/ [Date accessed: 09.09.2021]
26. Moore, J. L., Dickson-Deane, C., Galyen, K. (2011). E-learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education*, *14*, 129–135.
27. Moulaert, F., Martinelli, F., Swyngedouw, E., & Gonzalez, S. (2005). Towards Alternative Model(s) of Local Innovation. *Urban Studies*, *42*(11), 1969–1990. https://doi.org/10.1080/00420980500279893
28. Mural. (2021). *Product*. https://www.mural.co/ [Date accessed: 09.09.2021]
29. OECD/Eurostat. (2018). *Oslo Manual: Guidelines for collecting, reporting and using data on innovation* (4th ed.). OECD Publishing.
30. Olejniczuk-Merta, A. (2013). Innowacje społeczne. *Konsumpcja i Rozwój*, *1*(4), 21–34.
31. Ostoj, I. (2018). Reasons full-time students of economics in Poland undertake jobs. *Managerial Economics*, *19*(1), 117. https://doi.org/10.7494/manage.2018.19.1.117
32. Parkes, M., Reading, C., & Stein, S. (2013). The competencies required for effective performance in a university e-learning environment. *Australasian Journal of Educational Technology*, *29*(6), 777–791.
33. Piwowar-Sulej, K., & Kwil, I. (2018). Przedsiębiorczość, przedsiębiorczość akademicka i technologiczna, innowacyjność — próba systematyzacji. *Przegląd Organizacji*, *7*, 18–24. https://doi.org/10.33141/po.2018.07.03
34. Poce, A., Agrusti, F., & Re, M. R. (2017). Enhancing higher education students' XXI century skills through co-writing activities in science teaching. *Journal of E-Learning and Knowledge Society*, *13*(1), 51–64. https://doi.org/10.20368/1971-8829/1250
35. Quizizz. (2021). *The 100% engagement platform*. https://quizizz.com/ [Date accessed: 09.09.2021]

36. Radović-Marković, M., Vučeković, M., Nikitović, Z., & Lapčević, G. (2020). Learner creativity among entrepreneurship students in higher education through e-learning. *International Journal of Entrepreneurship*, *24*(5), 1939-4675-24-5–439.
37. Ray, S., Srivastava, S., Diwakar, S., Nair, B., & Özdemir, V. (2016). Delivering on the Promise of Bioeconomy in the Developing World: Link It with Social Innovation and Education. In *Biomarker Discovery in the Developing World: Dissecting the Pipeline for Meeting the Challenges* (pp. 73–81). Springer India. https://doi.org/10.1007/978-81-322-2837-0_6
38. Selim, H. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education*, *49*(2), 396–413.
39. Selim, H. M. (2003). An empirical investigation of student acceptance of course websites. *Computers & Education*, *40*(4), 343–360.
40. Skawińska, E., Sobolewska-Poniedziałek, E., & Zalewski, R. (2014). Znaczenie innowacji społecznych w kształtowaniu wizerunku regionu jako źródła przewagi konkurencyjnej. *Przegląd Organizacji*, *6*(893), 6–13. https://doi.org/10.33141/po.2014.06.01
41. Skubiak, B. (2016). Innowacje społeczne w teorii i praktyce. *Barometr Regionalny*, *14*(1), 29–33.
42. Songkram, N., Khlaisang, J., Puthaseranee, B., & Likhitdamrongkiat, M. (2015). E-learning System to Enhance Cognitive Skills for Learners in Higher Education. *Procedia - Social and Behavioral Sciences*, *174*, 667–673. https://doi.org/10.1016/j.sbspro.2015.01.599
43. Steculа, K., & Wolniak, R. (2022). Advantages and Disadvantages of E-Learning Innovations during COVID-19 Pandemic in Higher Education in Poland. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(3), 159. https://doi.org/10.3390/joitmc8030159
44. Sun, J. C. Y., & Rueda, R. (2012). Situational interest, computer self-efficacy and self-regulation: Their impact on student engagement in distance education. *British Journal of Educational Technology*, *43*(2), 191–204. https://doi.org/10.1111/j.1467-8535.2010.01157.x
45. Szopa, A. (2009). E-learning jako narzędzie wspomagające proces zarządzania wiedzą w szkole wyższej. *Zarządzanie Publiczne*, *3*(7).
46. Taatila, V. P., Suomala, J., Siltala, R., & Keskinen, S. (2006). Framework to study the social innovation networks. *European Journal of Innovation Management*, *9*(3), 312–326. https://doi.org/10.1108/14601060610678176
47. Tuckman, B. W. (2007). The effect of motivational scaffolding on procrastinators' distance learning outcomes. *Computers & Education*, *49*(2), 414–422.
48. Unnikrishnan, A. (2016). E – Learning: An Individual Learning Perspective: an Analysis. *International Journal of Engineering Research And*, *V5*(11). https://doi.org/10.17577/IJERTV5IS110062

49. Unold, J. (2010). Zarys strategii wdrażania e-learningu na Uniwersytecie Ekonomicznym we Wrocławiu w latach 2008-2009. *Ekonomiczne Problemy Usług*, *57*, 707–715.
50. Urdan, T. A., & Weggen, C. C. (2000). *Corporate e-learning: exploring a new frontier.* PA: WR Hambrech & CO.
51. van den Berg, C., & Verster, B. (2020). Co-Creating Social, Digital Innovation to Recognise Agency in Communities: A Learning Intervention. *Conference of the South African Institute of Computer Scientists and Information Technologists 2020*, 85–93. https://doi.org/10.1145/3410886.3410912
52. Vincent-Lancrin, S., Urgel, J., Kar, S., Jacotin, G. (2019). *Measuring Innovation in Education 2019: What Has Changed in the Classroom? Educational Research and Innovation*. OECD Publishing.
53. Vujovic, S., & Parm Ulhøi, J. (2008). Online innovation: the case of open source software development. *European Journal of Innovation Management*, *11*(1), 142–156. https://doi.org/10.1108/14601060810845268
54. Walancik, M., & Dwilewicz, B. (2018). Innowacyjne metody kształcenia w edukacji ustawicznej na odległość Platforma Moodle. *Edukacja Ustawiczna Dorosłych: Kwartalnik Naukowo-Metodyczny*, *4*, 80–89.
55. Włoch, R., & Śledziewska, K. (2019). *Kompetencje przyszłości: Jak je kształtować w elastycznym ekosystemie edukacyjnym?* DELab UW. https://www.delab.uw.edu.pl/wp-content/uploads/2019/09/Kompetencje_przyszlosci_Raport_DELabUW.pdf
56. Wordwall. (2021). *Funkcje*. https://wordwall.net/pl [Date accessed: 09.09.2021]
57. Wronka-Pośpiech, M. (2015). Innowacje społeczne - pojęcie i znaczenie. *Studia Ekonomiczne*, *212*, 124–136.

ARTICLES

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE
vol. 38. No 3 (2022) pp. 42-60
DOI https://doi.org/10.24136/ceref.2022.011

Grażyna Golik-Górecka*
Piotr Komorowski, VELG Group*

Strategies for Pivoting Enterprises in the Post-covid Time

Abstract

In the conditions of now even heightened uncertainty, companies' strategies need to be verified. In order to quickly redefine and adapt a new strategy to the changing market conditions, it is necessary to implement new solutions and business models along with pivots. The enterprise of tomorrow is the one that starts today. So in order to be or become this enterprise of tomorrow, the level of its digitization and many of the processes carried out must be raised. The aim of the article is to present pivots and possible changes to the pivots of Innovative Business Models and their implementation. The research method that will be used is the analysis of case studies - how companies should recover from the situation of the Covid-19 pandemic, what they can do, how they should function, so that they can continue to grow faster. S. Umiński in Forum-Marketera + in the article Marketing A.D.2030 (Forum2021) stated that we took over from the world of start-ups the concept of pivot, i.e. a strategic shift and redefinition of the business model. It should be more and more often used in large corporations that so far pride themselves on using the -agile- methodology in various implementations. In this article, practical examples (case studies) of a Polish and foreign company will be presented - identification of redefining the strategy and implementation of pivots together with better results of further development of these companies. Examples of companies are Velg Group and Shopify, in which pivots were implemented, which emphasizes the practical approach of the co-author of the article.

* Grażyna Golik-Górecka PhD +habil, Department of Marketing, Faculty of Management, University of Lodz grazyna.golik@uni.lodz.pl, ORCID ID: 0000-0002-0154-436
* Piotr Komorowski, VELG Group

The research questions refer to what types of pivots and they are implemented, which will be presented based on the example of the above-mentioned case studies.

Keywords: process pivots, pyramid pivot, trajectory pivot, implementation of pivots

JEL classification: M130

Paper type Research paper

Introduction

The statement by Drucker (1976), which is still valid today, must be confirmed: the future will not be created tomorrow; it is created today, mostly as a result of decisions and actions taken in relation to current tasks. Conversely, what is done to trigger future events directly affects the present ones. The tasks overlap. They require one, uniform strategy. Otherwise, they cannot be realized at all. Hence, it is necessary to quote the statement of Obłój (2017), who talks about an experiment for the future. A good experiment is the one that has growth potential, provides margins or cash flow, and uses an elementary strategy with up-to-date resources and competencies. Other experimental proposals must be firmly said "no". The article below is devoted to such experiments. Its essential aim is to present the essence of pivots and possible changes to the pivots of Innovative Business Models and their implementation. The research method that will be used is the analysis of case studies - how companies should recover from the situation of the Covid-19 pandemic, what they can do, how they should function, so that they can continue to grow faster. In this article, practical examples (case studies) of a Polish and foreign company will be presented - identification of redefining the strategy and implementation of pivots together with better results of further development of the companies.

1.The concept, essence, classification of pivots and their meaning

Beginning with such an important topic as included in the title of the article - strategies of pivoting enterprises in post-covid time - the basic concepts, essence and classifications of pivots, first of all, pivoting process should be presented, and it will be included in the literature review below. The concept of pivot - the function of physically rotating the screen 90 from landscape mode to portrait mode (height greater than width) (- Słownik.one, https://www.slownik.one›pivot. According to Business Advice What's a Business Pivot Strategy? (2021) making a turn is a strategic move that can be made to make a business profitable. It is a strategy of at least six or twelve months, but an example of turnover is also a situation

when a restaurant during the downtime during Covid-19 changed its offer for take-away only. It may happen that for some restaurants it will be a permanent change. The goal of changing the position of the company will be the fastest return to profitability. Conversion requires additional investment and time, and may also require assortment changes, branding and marketing activities, and new ways to distribute goods or services. Even if the changes are to be long-term, it is enough to find a few ways to adjust products or services as well as marketing activities so that they can work.

Pivot is not only used to get companies out of smaller or bigger problems. It is also perfect when the company plans to set sail on wider waters than before, for example, to expand the target group. Importantly, although pivot is most often associated with startup environments, it can be used at every stage of business development**.** The author M.Wojtas in paper And what if a small… pivotlet were to be done in the company?) recalls publication *What is pivot and is it really as effective in business as they say?* by E. Ries- the author of the book entitled The Lean Startup Method, who states that pivot in business is a change in strategy, in its original course, but not accompanied by a change in the company's vision. Pivoting is a manifestation of market flexibility and proof of the ability to quickly react to everything that happens in the company's environment. All of this serves to better match the product to the market and customers. Despite a rather short definition, in practice, pivoting can be a difficult undertaking for entrepreneurs. Next, the author points out that pivot can refer to many different activities of the company: offer, target group, market location, sales channels, type of distribution, type of promotion.

In turn, according to J. Kotarbiński (Kotarbiński, 2018) pivoting is a survival skill. Changes in the company, the key element of which is pivoting, consist in introducing changes to one or more of the factors mentioned, in a situation requiring modification of activities imposed on us by the market, i.e. customers most often. In addition, the author states that pivoting is a specific reflection of market flexibility - the better the company masters this ability, the more effectively it will respond to the changing environment, primarily in terms of changes in customer lifestyle. Changes should always be implemented when they are to provide us with a specific effect: better reaching the customer, more efficient product adaptation, more effective communication, reducing costs or increasing revenues.

It is worth quoting the considerations presented by the Founder Institute on the importance of pivoting, its causes and effectiveness (What is pivoting, when to pivot and how to effectively and successfully make a turn (Founder Institute, What pivoting is 2018) strategy, it is often believed that it involves a drastic change of the entire company. But this is not always the case. Often the company has only one important problem that needs

to be resolved and requires only one aspect of the company to be changed. Below there are some examples indicated by the Founder Institute and considered as "shifting". They include e.g. transforming one product feature into the product itself, resulting in a simpler, more streamlined offering. The opposite of this point is also considered a turning point in which one product is transformed into a function of a larger set of functions within another product. Focusing on a different group of clients by positioning the company in a new market. Another example involves changing a platform, let's say, from an application to software or vice versa. What proves essential is also applying a new settlement model in order to increase monetization as well as using various technologies to build a product, often in order to reduce costs of making or designing a more reliable product.

Reasons for shifting. In fact, a shift should only be considered when absolutely necessary and when all other options have been exhausted. The reasons for a situation when a shift really makes sense is when e.g. the company always manages to catch up. If our business grows too slowly despite the amount of work we put into it, we may need to consider changing our position. The business itself may not need to change, but we may need to change the business or income model, product or market. Another situation requiring pivoting is when competition is too fierce. Although at first, an idea may seem unique and original, there is always a chance that a larger company with more resources and funds and a built-in audience may create a similar, but a better offer. The situation when the company is stagnant and we observe slow (or no) progress in its development, will force us to change something. The stagnation may be the result of boredom or lack of team motivation, or simply an ineffective strategy, but whatever the cause, shifting definitely needs to be considered.

The company and its managers should concentrate on one really important thing. If only one aspect of the business is successful and the rest fail, or at least slow down, it could mean that the business should focus on making a profit on what works and change, perhaps even radically, or completely abandon what is not working. By focusing on what works, depending on our strategy, the business can experience increased productivity, efficiency and revenue.

It may also happen that the market has a limited response. We can do all the customer research and development in the world, but just because someone says they would now pay X the amount for an offer, it doesn't mean they will still buy it, say, six months later when a new product or service has actually been built and launched. A warm response to the initial release of an offer usually does not bode well, and while marketing and PR buzz can be generated, there is only so much you can do to convince the world of the value of your product.

On the other hand, the company's perspective may have changed. Once you've established a business and it has been around for a while, the chances are that your goals, vision, and values will change. Exploring a niche and experiencing it firsthand is completely different from each other and you may realize that there are other, better paths that a company can take.

The problem of pivoting efficiency is another important aspect. Once there is a decision to pivot a business, there are many factors to consider that entail a successful shift. Tips to help reduce the risk of rearranging and increase the chances of a positive result. They include for example, fast decisions. Many companies change a direction more than once, so don't give up on your startup life if you feel you may need to change a course multiple times to get your business on track. However, if a pivot needs to be made - be it once, twice or multiple times - it should be done as early as possible to avoid wasting time, effort and money. We should bear in mind that selecting new goals must be in line with our vision. Entrepreneurship is difficult and requires being honest with yourself as brutally as possible, because starting and running many companies, or even one company, is a long-term endeavor. We should take a step back and evaluate our life mission, but also take the extra time to make sure the new vision is right for our business. We should not give up work that is already done. Since shifts do not necessarily require a radical change of a course in all cases, it is important to identify which aspects of your business can be salvaged, retained, and reused once you have taken a new direction. What is really crucial at this point is the fact that we should listen to our customers. The feedback we get from our customers is a great indicator of whether we should be pivoting or not.

Another important aspect is that it should be verified whether the pivot offers opportunities for development. The pivot can be a useful decision for a startup that has encountered a stumbling block and cannot move on. However, if we steer our business in a new direction, the chances are that we will run into another obstacle, but in different circumstances. In order to prevent this from happening, the possibilities of development and expansion on a new path should be taken into account.

The authors-bloggers of Blog, Entrepreneurial leadership, Investor access, Pitching to investors (2022) suggest further steps involving reviewing business plan and strategy- as well as considering the following issues in one’s pivot strategy:

- What products and services does your company offer and are they still desirable and suitable for your customers?

- Is there a way for short-term modification of the business so that it now generates sufficient income and has future profitability - or are more significant strategic changes needed?
- Would your company be better positioned if you gave up traditional presence and only offered online sales and services?
- What kind of employment changes should be made to be profitable?
- Do you have cash on hand to make the necessary changes, if not, can you get it?

All the steps presented above refer also to the method of pivot trajectory described in the further part of the paper.

Typology of pivots

A pivot may entail a simple change, such as recognizing that the product's price was inappropriate, or it may entail a more complex change, such as switching the target customers or repackaging a monolithic product into a family of products (Blank and Dorf, 2012).

It is worth emphasizing once again defining that - a pivot may mean a simple change, e.g. recognizing that the price of a product was inappropriate, or a more complex change, e.g. changing the target audience or repackaging a monolithic product into a product family (Blank and Dorf, 2012). What is necessary here is to present the following types of pivots identified by Ries (2011):

1. **Zoom-in Pivot**. We perform this type of pivot when, after analyzing what the user does with the product, we decide only on one aspect of it .. This fragment of the old product, in fact, becomes a new product.
2. **Zoom-out Pivot** is pivot the other way around - what we have today is not enough to be an interesting standalone product, so we extend it until we get something valuable for customers.
3. **Customer Segment Pivot** is performed when we discover that a product really solves the problem of users, we should focus on the group that uses the product.
4. **Customer Need Pivot** is when we have tried to solve "A" but it turns out that "B" is a much bigger problem for the customer. Then, if we have a solution to the "B" problem, we can focus on it.
5. **Platform Pivot** concerns switching from one platform to another (e.g. from a web application to a mobile application).
6. **Business Architecture Pivot**. In the case of many industries, we can talk about two separate approaches - we try to acquire a small group of customers, but with high margins (usually B2B industries and products), or we want to have a mass product with lower margins and a different philosophy of acquiring

customers (usually B2C market). This type of pivot was made by many SaaS companies - they took a product previously used on the B2B market and made them into products for the B2C market.

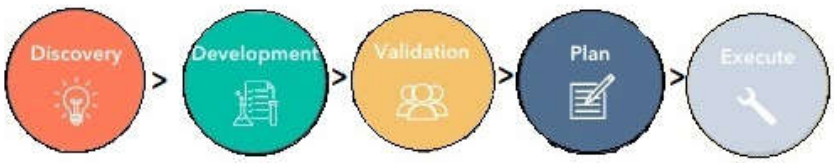
7. **Value Capture Pivot** means changing the way you earn/ monetize.
8. **Engine of Growth Pivot**. In this pivot, the company changes its main method of increasing customer acquisition in order to grow faster or catch the right customer segment. It very often means introducing freemium, switching from freemium to free trial (or vice versa)
9. **Channel Pivot** is a change/ simplification of the sales model. This is often associated with cutting out middlemen. The high-profile case is probably Apple, which gave up selling through intermediaries and created its own off-line stores.
10. **Technology Pivot** – is performed when a new technology appears that completely changes the way the service / product is produced.

However, there is no simple recipe for the company of tomorrow. There are possibilities to implement different strategies of the future for the enterprise of tomorrow. In the third point of the article, practical examples of implemented pivots will be presented.

2. Pivoting process.

The pivoting problems discussed earlier can be grouped into a structured, logical process that can be carried out in five steps (Fuchs, 2022) or a pivot pyramid. Figure 1 shows a five-step process

Figure.1 Pivoting process



Source: J.Fuchs. When, Why, & How to Pivot a Startup Business, 2022, https://blog.hubspot.com/sales/pivot-startup

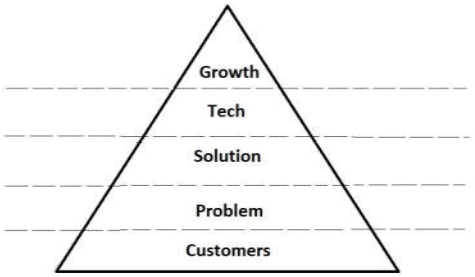
In case when a company assumes that business isn't scaling as planned and they know that a pivot is necessary, they should refer to the process whose stages are presented below.

1. Discovery: This stage is similar to your initial customer profile development, only now you're using the data and feedback you have collected while running your business. It should be used to inform about changes in your business model and product ideas.
2. Development: Once you have established a new product idea, it is time to develop a prototype. You should come up with something that has just enough viable features to attract early customers. This is also referred to as a minimum viable product (MVP). The product will be tested in the validation phase, so you do not want to spend too much time and resources on its development.
3. Validation: Now that you have got your MVP, it is time to test it. You must reach out to customers for feedback and insights. You should adjust and iterate on the product until you come up with something that customers will buy.
4. Plan: Pivot will not be successful without a plan. You should create a timeline to bring your new product to market. Additionally you must make sure that any necessary changes to branding and messaging are implemented before the launch.
5. Execution: All the groundwork has been done. Now it is time to execute your plan and launch. You may get insight into the functions that are the most popular among customers and you will know what technology can be used for a new idea.

Most successful businesses go through several turning points to find a product that fits their market. What makes it work is usually not one major turning point, but a series of experiments that cover the target customer, problem, product, technology, and growth channels. However, there is a process that enables entrepreneurs to effectively experiment in these areas of their activity, included in the so-called pivot pyramids presented by Alti S. (Selcuk 2019).

Pivot Pyramid is an intuitive and visual process that founders can rely on as they experiment with their startup in search for product market fit. It explains how companies can pivot in different areas of their company such as customers, problem, solution, technology and growth - and how these changes affect each other. Pivoting process in the form of pyramid is presented in Figure2

Figure 2. The Pivot Pyramid



Source: Selcuk Atli, who introduced the "Pivot Pyramid" model is a serial entrepreneur based in New York. https://medium.com/@pivot_pyramid/introducing-the-pivot-pyramid-aa26d0255397)

Customers are the backbone of a startup. The problem that is solved, the product that is created and the technology on which it is built, all of these depend on who the customer is.
Problem. The right customer may have been identified, but we also solve the problem, If we have the right customer and the problem, we also have the market.
Solution. Problems that are important to customers are identified. Now you need to build a product that appeals to your customers better than the existing solutions on the market. Like all other changes to the marketing pyramid, changes to a product must be for measurable growth.
Technology is just a way to build a new solution. Even if the product resonates well with customers, technological choices may hinder the development and maintenance of the company.
Growth. All changes to the pivot pyramid must lead to growth. However, some experiments do not require any significant changes to the product or technology. These changes are at the top of the pivot pyramid. A great marketer should experiment with new growth tactics frequently. This is needed because most growth channels either saturate or become too expensive over time.

There are many approaches and studies on both the Canvas business model and various ranges of proposals and research on aspects of pivots. One of them is the development of Sanasi and Ghezzi (2022) **Pivots as strategic responses to crises: Evidence from Italian companies navigating Covid-19.**

The situation related to Covid-19 offered an opportunity to investigate new ventures' processes of business model transformation (or pivoting) during a major crisis. Specifically, adopting a multiple case study design, we investigated how four Italian firms operating throughout the Covid-19

emergency pivoted in response to the crisis. The authors developed a conceptual model of pivots-as-process that comprises three stages: reaction to shock, response, and retrospection, leading to longer-term strategic reorientation. Their search suggest that pivots play out across the three distinct layers of *enactment*, *reflection*, and *awareness*.

Another very interesting publication that needs to be discussed is *How digital startups use competitive intelligence to pivot* by Sadeghiania , Shokouhyara, Ahmadib (2022). Here, the role of data analytics capabilities in business model innovation has been emphasized. Today's competitive intelligence tools such as Alexa, Google Analytics, Similarweb, NexLab TrackEngine, etc. easily provide the decision-makers with competitive intelligence. However, the quality of these decisions at the exposure of competitive intelligence is still unknown. The aim was to investigate the role of competitive intelligence in entrepreneurs' decisions on business model pivoting at the early stages of their startups. The authors used a qualitative multi-case study of six startups to investigate the changes in the founders' attitudes toward their business models at the exposure of data analytics. Competitive intelligence led the early-stage entrepreneurs to pivot their business models. However, the quality of the resulted business models was questionable. To ensure the quality of decision-making, founders need to be supported by cognition service systems beyond the current competitive intelligence systems.

The next article entitled *Building Resilient and Innovative Business Models in the Era of Covid-19: A Process Approach* by Montemari, M. and Gatti, M. (2022) is also a very interesting paper citing the classification of 10 types of Ries pivots (2022) and exemplary 9 KPIs within each building block. The paper connects, organizes and systematizes within a structured process of several BM tools that have been proposed in the BM literature. The paper thus highlights how tools for BM mapping, control, and innovation can convey information to one another and can be connected in a way that allows companies to obtain a synergy effect when it comes to face instability and uncertainty. Overall, the paper shows that the combined and organized use of such tools is more valuable and useful than the application of single tools in isolation, thus highlighting that silo mentalities should be avoided.

Another approach according to Snihur, Y. and Claryssebc, B. (2021) presents organizational identity dynamics in a new venture pivoting, https://www.sciencedirect.com/science/article/abs/pii/S0883902621000744. to conduct an in-depth, longitudinal field study of a new venture developing technology for converting websites to mobile devices. The venture completes its first turnaround but fails on its second attempt to turn its business model around in a nascent market. Comparing the completed and failed turn, the analysis suggests that the new turn/pivot of the venture lies in the ability

to crystallize individual roles of organization members ("what we do") in accordance with the organizational identity ("who we are"). Their findings shed light on stakeholder constraints on switching by scaling new ventures through the micro-mechanism of role crystallization. The analysis also identifies the intertemporal effects of persisting organizational identity, thus advancing research into the dynamics of organizational identity in new ventures.

The authors Soans and Kostandinovic (2022) in *Enhancing startup valuation through sustainability* emphasize that startups operate with limited resources and profit margin visibility. Investors secure their investment based on the reputation and credit of startup founders or valuation methods. The key question is: Are variables missing from these valuation approaches? The answer is: "Sustainability". Today, the need for something bigger increases the responsibility for sustainable development in enterprises and sustainable finance. Startups with a sustainable approach may be more attractive to investors. In this article, the authors propose startups to adopt a sustainable first approach not only to meet social requirements, but also to increase a startup value.

Another very interesting publication is *Business model analysis in E-commerce Start-Up* by A.M. Rani, R. Adwiyah, (2022). E-commerce start-up companies in Bandung have the potential to be developed and reduce unemployment because they absorb labor. The e-commerce business start-up utilizes web-based technology and applications to provide facilities and services, so that all end-to-end customer needs can be met with just a cell phone. Based on this potential, the web hosting and domain service provider business is a promising business and allows for new competitors in this business activity. This study aims to map the business model of e-commerce start-up business in Bandung by taking samples at OYO rooms using nine Business Model Canvas blocks which are expected to be able to solve existing problems and conduct a SWOT analysis of their business model to see strengths, weaknesses, opportunities, and threats owned by the OYO rooms.

The aim of the next article by Kamariotou, M, Kitsios, F. (2022) entitled *Bringing Digital Innovation Strategies and Entrepreneurship: The Business Model Canvas in Open Data Ecosystem and Startups* is to explore and analyze how actors in the open data ecosystem work together, as well as their actions to generate value. Thirteen interviews were conducted with entities operating in the open data network. The information collected was used to assess how the existing ecosystem provides new business opportunities for those who provide data and those who use it. A business model canvas (BMC) was used to analyze the results, and the results were presented from the perspective of each entity in the network, including a startup. To add value to open data, a mind map

was developed to show how results are related in an attractive and easy-to-understand way.

Another idea for pivot trajectory is presented in the book by A. Osterwalder, Y. Pigneur, F. Etiemble, A Smith: *The Invincible Company* (2020). It is a very interesting solution that involves searching and pivoting, until we are certain that a new business idea may work. Searching includes discovery, validation and acceleration. A pivot trajectory involves reality check and change of direction. All these elements were described before in this paper. This study presents in detail the theoretical foundations, which due to the volume requirements of the article cannot be presented. What is only worth mentioning is the division into the exploration phase and portfolios of future projects, including the expected rate of return and innovative risk (reference to the Canvas model) and the development phase and portfolio of current projects, including the rate of return and the risk of collapse and destabilization (referring to the trajectory of growth and collapse of the venture. These three methods of process, pyramid and trajectory of the invincible company are appropriate for implementing pivots in practice.

In this publication, it is claimed that designing is an activity consisting in transformation of unclear ideas, market observations and evidence from tests into specific proposals of values and firm business models. The examples presented above depict big companies, whereas this paper attempts to present a pivot process in a small Polish and big foreign company.

3. Methodology

In this article, practical examples (case studies) of a Polish and foreign company will be presented - identification of redefining the strategy and implementation of pivots together with better results of further development of these companies. Examples of companies are Velg Group and Shopify, in which pivots were implemented, which emphasizes the practical approach of the co-author of the article. The research questions refer to what types of pivots and how they are implemented, which will be presented based on the example of the below presented case studies. In the literature there is still a lack of examples of implementations of pivot processes as well as pivot pyramid and trajectory. This empirical research was based on suggested theoretical solutions shown in analyzed publications.

4. Practical examples of Polish companies and companies with foreign capital - identification of implemented pivots.

Well-known brands such as: Facebook, Twitter, Instagram, Groupon, Apple, IBM, Paypal, Airbnb, Play-Doh or Netflix, each of them has a more or less surprising pivot behind. Here are some examples: Groupon started out as a social networking site for people interested in specific events, Play-Doh was originally a wall cleaner, Netflix first offered DVD borrowing via mail, and IBM moved from printer manufacturing to computer manufacturing to consulting . Other examples (Pivot in a start-up and change management, wFirma.pl 2017, 03.2020) are: YouTube is a real giant today. Views count in billions. Its career was quite fast, it only started in 2005, and a year later was sold to Google.

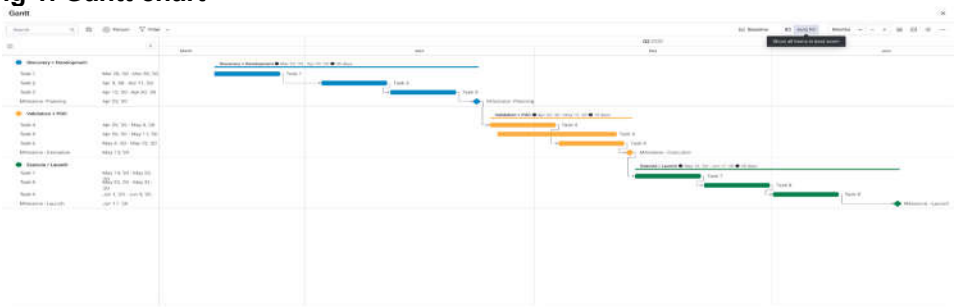
Twitter: Originally this microblogging site was called Odeo and you could upload your voice recordings in mp3 format. Later, the creators came up with the idea that the concept needs to be modified, so they wanted to share podcasts on the site. At the same time, however, Apple came up with the same idea, so the competition was beating their heads. Therefore, the creators made a quick decision - a complete change of the initial assumptions was to make them successful. It was then that it was invented that it would be a microblogging platform. The idea worked out perfectly, and today's Twitter is the most popular page where you can leave short messages. **Groupon:** on the other hand, it was initially something of a social networking site where people gathered to start the event. However, it soon turned out that instead of planning a protest or demonstration, people prefer, for example, to order a pizza in groups. So the portal changed its function and became the group shopping platform as we know it today. Pivots turned out to be the real bull’s eye in the above-mentioned cases.

4.1 Case study – Polish company called Velg Group

Velg Group (https://www.velg.co) is a consulting company specializing in consulting and implementation of innovative cloud solutions. As an official Partner / Reseller of such SaaS software producers as: monday.com, Zendesk, Shopify, Pepperi, Calendly, Bitskout CloudOffix, make.com, Tuqqi, Tape, I support customers in the digital transformation process. Since 2011, it has been offering comprehensive services in the field of IT consulting, software adaptation to unique processes in companies, system integration and user training. The real challenge that contributed to the application of the pivoting strategy was the Covid-19 period. About 80% of the generated revenue sources before the outbreak of the pandemic came from consultations, trainings and workshops carried out in the on-site model, which means providing services directly at clients'

offices. The pivoting process was carried out in five stages, as shown in the Gantt chart below.

Fig 1. Gantt chart



Source: own Velg study

Presentation of the next five stages of the pivoting process.

Discovery: After the analysis of the first months of the pandemic, a significant decrease in services provided by Velg Group was identified. It turned out that the vast majority of companies were forced to start working remotely. Customers canceled or postponed already ordered services into an undefined time perspective.

Development: A strategy was developed to adjust the offer of services to the existing, new market conditions and customer requirements - Customer Need Pivot. A decision was made to introduce the product of remote consultation services and online training packages. This required an analysis of ready-made solutions already existing on the market that would meet the expectations of an efficient process of providing advanced services and ensure a high level of User Experience. Creating and developing your own software is time-consuming and requires high investment.

Validation: It was decided to choose a package of complementary cloud applications:

- monday.com for the implementation of implementation projects with a special zone of customer access to individual work areas.
- Zoom to improve communication and conducting dedicated video consultations with clients and conducting remote training webinars.
- make.com as an integration platform for remote configuration of multi-level data exchange processes between the systems operating in the infrastructure at customers' infrastructure and the new ones implemented together.

- Calendly - streamlining the process of booking online appointments that verified the availability of consultation dates in real time, with a key aspect, namely the payment gateway. Selected clients were invited to the tests and pilot projects were implemented. The Proof of Concept (Pilot) phase was successful and the customer reception was positive.
- **Plan:** A full implementation phase of the solution is planned, taking into account future development options and a change in the communication strategy.
- **Implementation:** A new website has been implemented, reflecting the marketing guidelines for new communication and facilitating the process of acquiring and serving customers.

Table 1.Training schedule (Stationary v. remote)

Number of trainings/consultations	2019	2020	2021
Stationary	82%	17%	22%
Remote	18%	83%	78%
	100%	100%	100%

Source: own Velg study

The pivot process and the customer pivot segment are presented in this case.

4.2. Case study Shopify – Pivot.

Shopify is currently one of the largest e-Commerce platforms for online stores in the world. This is an example of specifying a customer pivot segment. Shopify founders Tobias Lütke and Scott Lake decided to create online sales for their own snowboard products. Lütke was a programmer, but he didn't initially want to create his own software. In 2004, in their opinion, there were no interesting solutions on the market that would be user-friendly, so they decided to create their own online store under the name Snowdevil. After two months of building the infrastructure from scratch, the store was launched. The online store's initial performance turned out to be very good, exceeding the turnover of the brick-and-mortar store. In the Canadian Ruby on Rails developer community, their solution proved to be an initial success, so they made a decision to pull out of the snowboarding business and focus on building an e-commerce platform for other companies they would like to sell online. After two months of building on Rails, the Snowdevil website was ready for action. They had a profitable snowboarding sales season in 2004, but the initial reaction to Shopify

set them apart even more than their store. They started handing over their e-commerce platform to colleagues in the Rails' community, and received tons of inquiries about how they built the site. Soon Lütke and his friend Scott Lake were less motivated to sell snowboards than to build a business around the e-commerce platform they had created to help others sell their wares online. They put the Snow Devil on the shelf. The duo spent a year and a half developing and improving their software, paying particular attention to flexibility. With $ 200,000 from friends and family and $ 250,000 from a business angel, Lütke and Lake officially launched their customizable online store builder in 2006 and called it Shopify. But most importantly, they had paying customers (https://www.alexanderjarvis.com/before-they-were-famous-15-startup-pivot-to-fame-5-shopify-and-slack).

At this point, the business model was reconciled with the client's success. Shopify now focused on product development on creating features that helped customers sell more, as each sale for a customer meant more revenue from transaction fees for Shopify. For example, they built analytics into the product to help sellers track their inventory and sales, which early adopters loved. The focus of the new team on perfecting its creation paid off in 2008 when it became profitable. The situation of Spotify was very well presented by M. Manzoni and L. Luo (2020) in the article entitled *The 4 innovative business pivots in the age of pandemic*. As the pandemic and advertising agencies cut their budgets, this previously profitable company became a burden. To address the decline in revenue, Spotify cleverly shifted to creating original content - following Netflix's success patterns - using podcasts. This attempt of content creation turned Spotify from a middleman to deliver music to a source of original content for its consumers - a brilliant long-term shift. While it is unlikely that Spotify will ever be able to create a major record label, the transition to the world of content creation allows it to retain a much larger share of the profits. It is likely to be a much better engine for growth for the company in the years to come. So the new revenue streams that were introduced allowed them to get more value from customers.

In 2010, Shopify caught the attention of investors with $ 7 million in funding, and in 2011, the company raised another $ 15 million. Lütke and his early team built an easy-to-use product where none existed, and gave small merchants the tools to solve their own problems. This created a new market for people who had never been able to successfully sell online before, but now had everything they needed. They solved the problem themselves and it turned out well. According to the results published by Shopify, more than 1.7 million entities in approximately 175 countries used this platform in May 2021. Sales amounted to $ 4,611 billion at the end of 2011 (https://investors.shopify.com/financial-reports). This is an example of a startup pivot, in which creating a product solely

for one's own needs turned out to be a valuable solution to deliver value to other clients and take advantage of the opportunity to achieve great market success. So, it is customer segment and technology pivot that matter. In these examples, we can simultaneously observe moving through the rungs of pivot pyramid.

Conclusions, recommendations.

The important aspects of pivot implementation methods mentioned in subsequent publications are very important. The Founder Institute rightly captures the importance, causes and effectiveness of trading. In further studies, both the pivoting process and the pyramid include stages according to which he also mapped the stages of the process at Velg, and then also in Shopify, along with the identification of types of pivots and growth effects. However, in the publication - The Invincible Company - in the exploration phase there is a trajectory of exploration and return, and in the exploitation phase - activities within the portfolio of current ventures lead to a growth trajectory with scaling, strengthening and protection, as well as a decline trajectory with destabilization, crisis and significant changes in the business model and company's re-growth. However, it is impossible to calculate and indicate what trajectory analyzes may be carried out due to the lack of access to data. These methods can be used in pivoting in Polish companies. The last of the trajectory methods presented by an invincible company gives excellent and most detailed clues, which may be the subject of the next article.

The Velg case shows the adaptation to the customer's needs and training schedule that took place in the three years between 2019-2021. Over the next years, the trend in the number of classroom training sessions reversed - in 2019 they accounted for 82% and in 2021 only 22%, hence remote training increased from 18% in 2019 to 78% 1 in 2021. On the other hand, the case of the Stockholm giant in the field of music streaming, Spotify, sets a record in speed of development such that most of the Silicon Valley unicorns can envy. This is evidenced by the increase in the number of paid subscribers from 1 million in 2011 to 60 million in 2017. Summing up, these examples will help identify potential paths to the pivot axis - finding a new revenue stream (Spotify) or finding a clever and novel way to use key resources, while being innovative (Velg) in response to the pandemic's constraints, will enable a more resilient business model.

These case studies can be used as good solutions for practitioners, as well as examples for didactic purposes - for students particularly interested in start-up solutions. This case study is also a good example for students and a model that researchers can set for didactic purposes

to deepen their knowledge, as well as for enterprises interested in pivot-modern organizations. It may also be the beginning of further research in this area. So, it is definitely a contribution to the development of science.

Bibliography

1. Blank, S. and Dorf, B. (2012) The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company, Pennsauken. K&S Ranch, Incorporated , 2012 - Business & Economics /
2. Definicja i znaczenie pivot - Słownik.one, https://www.slownik.one › pivot)
3. Drucker P. (1976) Efficient Management, PWE, Warsaw
4. Forum-Marketera + ,(Marketer +. 2/3, 2021)Marketing A.D.2030
5. What Pivoting is, When to Pivot, and How to Pivot Effectively, Founder Institute (2018) https://fi.co/insight/what-pivoting-is-when-to-pivot-and-how-to-pivot-effectively
6. Fuchs J. (2022) When, Why, & How to Pivot a Startup Business, https://blog.hubspot.com/sales/pivot-startup
7. Make Investors Sit up and Notice #10 - To Pivot Or Not To Pivot, How To Pivot Successfully In BusinessYEC, Council Post| Membership (Fee-Based) 2020 https://intelliversity.org/make-investors-sit-notice-10-pivot/
8. The10 Ways to Pivot – More great information on Business Pivots (2022) https://intelliversity.org/make-investors-sit-notice-11-10-ways-pivot/
9. https://fullfatcommmerce.com/blog/a-history-of-shopify
10. https://investors.shopify.com/financial-reports
11. https://pursuitlending.com/resources/whats-a-business-pivot/
12. https://www.alexanderjarvis.com/before-they-were-famous-15-startup-pivot-to-fame-5-shopify-and-slack
13. https://www.forbes.com/sites/theyec/2020/07/03/how-to-pivot-successfully-in-business/
14. https://www.velg.co
15. Kamariotou M, Kitsios F. (2022) Bringing Digital Innovation Strategies and Entrepreneurship: The Business Model Canvas in Open Data Ecosystem and Startups, (https://doi.org/10.3390/fi14050127) (https://www.mdpi.com/1999-5903/14/5/127)
16. Kotarbiński J. 2018, https://goodpoint.blog/pivotowanie-umiejetnosc-przetrwania-zarzadzac-firma-zeby-dopasowac-sie-zmieniajacego-sie-sposobu-zarzadzania/
17. Manzoni M. and Luo L. (2020) The 4 innovative business pivots in the age of pandemic, (https://www.strategyzer.com/blog/4-innovative-business-pivots-in -the-age-of-the-pandemic)

18. Montemari M and Gatti M, Building Resilient and Innovative Business Models in the Era of Covid-19, Journal of Business Models (2022), Vol. 10, No. 1, pp. 67-77 https://journals.aau.dk/index.php/JOBM/article/view/7340
19. Obłój K.(2017) Practice company strategy on how to manage the past, deal with the present and create the future. Poltex,Warszawa,
20. Osterwalder A, Pigneur Y, Etiemble F, Smith A, The Invincible Company (2022) John Wiley & Sons, Inc., Hoboken, New Jersey. Published simultaneously in Canada
21. A.M. Rani, R. Adwiyah(2022) Business model analysis in E-commerce Start-Up https://www.taylorfrancis.com/chapters/edit/10.1201/9781003219149-90/business-model-analysis-commerce-start-rani-adwiyah),
22. Ries E. (2011) The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses Hardcover
23. Ayoob Sadeghiania Sajjad Shokouhyara, SadraAhmadib,(2022) How digital startups use competitive intelligence to pivot https://www.sciencedirect.com/science/article/pii/S266695442200014X
24. Sanasi S and Ghezzi A. (2022) Pivots as strategic responses to crises: Evidence fromItalian companies navigating Covid-19
25. https://journals.sagepub.com/doi/abs/10.1177/14761270221122933
26. YuliyaSnihura, BartClaryssebc, Organizational identity dynamics in new venture pivoting☆ https://www.sciencedirect.com/science/article/abs/pii/S0883902621000744.,https://doi.org/10.1016/j.jbusvent.2021.106164
27. Selcuk Atli, (2019) Who introduced the “Pivot Pyramid” model is a serial entrepreneur based in New York. https://medium.com/@pivot_pyramid/introducing-the-pivot-pyramid-aa26d0255397
28. The10 Ways to Pivot – More great information on Business Pivots https://intelliversity.org/make-investors-sit-notice-11-10-ways-pivot/
29. Frank Soans, Dr. Bojan Kostandinovic Enhancing startup valuation through sustainability
30. Wojtas M (2018), And what if a small… pivotlet were to be done in the company? https://www.corazlepszafirma.pl/blog/gdyby-tak-zrobic-w-firmie-maly-pivocik
31. What’s a Business Pivot Strategy? (2021) https://pursuitlending.com/resources/whats-a-business-pivot/

ARTICLES

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE
vol. 38. No 3 (2022) pp. 61-77
DOI https://doi.org/10.24136/ceref.2022.012

Marzena Góralczyk[1]

Relationship marketing from the perspective of employees (Comparison analysis)

Abstract

The aim of the study is to answer the question how the attitude of the company's employees has changed in terms of assessing building proper relationships with business partners in relation to suppliers, recipients, customers and other entities with which the companies/organizations cooperate. Moreover, it is important to demonstrate a change in perception in the assessment of activities conducive to building good relationships. The article presents various approaches to relationship marketing as well as its application and significance for the functioning of enterprises in various areas. The results of empirical research from two research periods conducted among respondents working in various enterprises and organizations in the Lubuskie voivodship have been presented. The subjectivity of employees in shaping relations with business partners has been demonstrated.

Keywords: relationship marketing, enterprise, environment, suppliers, recipients, customers, employees

JEL classification: L 140, L 220

Paper type: Research paper

Introduction

Business entities facing the challenges posed by globalization processes are looking for new sources of competitiveness. They can be seen not only

[1] PhD. eng, University of Zielona Góra, Faculty of Economics and Management

in the competitive advantage of a product, quality or timely implementation of activities. It is not without significance to look into the depth of the enterprise, to listen to the voice of employees, also in relation to building relationships with the environment, especially the closer environment. Relationship marketing becomes a response to the growing demand for improving the competitiveness of not only individual enterprises, but also cooperating economic entities. Enterprises, being in the field of constant interactions with their business partners, focus on building a platform of understanding with external stakeholders. The relationships that are created by enterprises with suppliers, recipients, customers as well as other economic entities may undergo constant transformations, changes resulting from the dynamics of the markets. It is worth getting to know the opinions of company employees on the conditions shaping these relations, taking into account various research periods, because such a perspective may shed new light on the further development of solutions in this area in practice. There is now a significant amount of relationship marketing research, much of which focuses on company – client partnerships, with less work on a wider range of stakeholders.

The aim of the study is to answer the question how the attitude of the company's employees has changed in terms of assessing building proper relationships with business partners in relation to suppliers, recipients, customers and other entities with which the companies/organizations cooperate. Moreover, it is important to demonstrate a change in perception in the assessment of activities conducive to building good relationships. The article presents various approaches to relationship marketing as well as its application and significance for the functioning of enterprises in various areas.

The study was prepared on the basis of the results of empirical research conducted in June 2016 on a group of 200 respondents and in the period from October to December 2018 also on a group of 200 respondents working in various enterprises and organizations in the Lubuskie voivodeship.

1. Concepts of relationship marketing and its area of application, meaning in practice

Relationship marketing grew out of two trends in marketing orientation, i.e. industrial and service orientation. The representatives of the first include, among the others, A. Payne, D. Ballantyne, and M. Christoper. In the second one we can find representatives such as: E. Gummersson, Ch. Grönroos, L.L. Berry (Kowalska-Musiał, 2007).

In the opinion of Payne, it can be understood as "a market-driven, customer-oriented, overall management concept, partly based

on a return to the roots of marketing and the original marketing concept" (Payne et al., 1999).

According to Grönroos (2015), relationship marketing is "to identify and establish, maintain and enhance, and when necessary terminate relationships with customers (and other parties) so that the objectives regarding economic and other variables of all parties are met. This is achieved through a mutual making and fulfilment of promises". A similar approach is represented by Rashid (2017), who believes that it is "about establishing, maintaining, strengthening and commercializing relationships with customers by delivering on promises" (Rashid, 2017). Now, we can see relationship marketing as an approach to develop "a long term association with customers, measure the satisfaction level and develop effective programs to retain the customer with the company" (Gupta & Sahu, 2012).

A slightly different approach to relationship marketing in terms of definition was adopted by Palmatier (2008), who believes that relationship marketing (RM) is "the process of identifying, developing, maintaining, and terminating relational exchanges with the purpose of enhancing performance" (p.3). Achieving long-term profitability through the use of relationship marketing is based on taking actions built on the level of trust between the interested parties and leads to sustainable development in the market and the goals of the involved parties can be achieved (Nyadzayo, Khajehzadeh, 2016).

As emphasized by Sheth (2017, p. 5), in relationship marketing, one should strive to "share in the heart" of customers and "take projects together" with them.

Grönroos (2017) lists what types of aspects should be taken into account by the company that will implement relationship marketing. These include various types of issues related to: the customer's perception of quality (e.g. the perception of interactions with company employees, investments in customer support systems) and covering customer processes and resources, for example, information on how to handle them.

Customer relationship management is currently significantly supported by highly advanced interactive technologies based on IT solutions. Customer databases enable direct communication management and integrated use of information transmission channels. It covers clients, including the provision of services to them (Nugroho et al., 2019) as well as recruitment processes, influencing suppliers and processes taking place inside enterprises (Dibb & Simkin, 2004).

Solutions covering industry 4.0 are becoming a challenge to apply relationship marketing. Thanks to them, there are new opportunities to meet the individual needs of customers, including the comprehensive organization of activities not only in sales (Dukić et al., 2017).

The relationships that are formed between the company and customers are based on the level of trust, competent provision of high-quality market offer and better satisfaction of needs and preferences. In the minds of customers, there is a belief that the enterprise – partner shares their values (Hunt et al., 2006). Co-creation of value takes place in the business-to-business (B2B) relationship and concerns contacts between business entities and business-to-consumer (B2C) consumers (Grönroos 2011; Watanabe 2020). This is favoured by the implementation of corporate social responsibility (CRS) solutions by enterprises (Luu, 2019). Taking such actions is an important area of the company's activity (Gummesson, 2008).

Relationship marketing is also analysed in the context of issues related to sustainable development, including a multidimensional approach to the dynamics of building international partnerships (Păduraru et al., 2016).

Taking care of relations between enterprises and their clients turns into a dimension of relations, strategically important for companies, at the level of contacts between the clients themselves (Ramani & Kumar, 2008). It is important to develop communication programs that increase trust in the service provider and foster the maintenance of long-term relationships (Balaji et al., 2016).

In the area of interest in the subject of relationship marketing, there are also issues related to the quality of relationships and building customer loyalty (Fullerton, 2005). This is supported by the implementation of CRM (Customer relationship management) systems, which can be "interpreted as a bridge between the organization and its customers" (Czopek & Kazusek, 2020, p. 34).

When analysing the approach of J. L. Neumann and C. G. Laimer (2019), it should be stated that relationship marketing also includes issues related to the competitive advantage between entities related to each other by dependencies based on networks and strategic alliances.

When developing strategies to improve relational benefits, managers can focus more on establishing (or enhancing) trust benefits and social benefits that significantly impact the perceived value and quality of relationships, which contribute to enhancing customer loyalty (Gremler et al., 2020). Relational resources influence the decisions and behaviour of customers through: cooperation, relationship loyalty and empathic behaviour on the part of company employees (Palmatier, 2008).

Major changes in the relationship between an enterprise and its consumers have occurred with the era of digitization. Enterprises, thanks to the use of social media, can exchange information, engage end recipients and build their trust, as well as receive feedback from them, which takes place on-line. Through these activities, "relationship marketing is viewed as a technology affordance of digital technology" (Sedalo, Boateng & Kosiba, 2021, p. 2).

The implementation of social media in the area of shaping interactions with clients gives additional opportunities to develop and emphasize social commitment (Zaif & Cerchia, 2019).

Increasing the level of orientation of the company in the study of company-client relations requires compliance with the recommendations regarding internal marketing and the implementation of a fully subjective approach to employees. Relationship marketing also includes processes taking place within the enterprise (Keller et al., 2006). Their goal is oriented, among other things, to the creation and improvement of relations between the company and its customers and the development of profitable cooperation with all interested stakeholders (Ciobanu & Lucasea, 2016). Clients evaluate employee behaviour in the context of relationship marketing as well as company policies and procedures.

2. Research method

The study used empirical research conducted on a group of 200 people employed in the Lubuskie voivodeship in June 2016 and they constituted a significant part of the research carried out that year. In order to conduct a comparative analysis, the results of empirical research carried out in 2018 in the period from October to December on a group of 200 respondents from the given area were also presented. The research was carried out with the help of a tool which is a questionnaire. It contained questions constituting the basis for presenting the characteristics of the studied population. The following elements of the description of respondents were distinguished: gender, age, length of employment in the enterprise/organization. The characteristics of the surveyed population are presented in Table 1. Moreover, the enterprises/organizations in which the respondents are employed were characterized on the basis of the respondents' answers. It is shown in Table 2.

Table 1. Characteristics of the studied population – research results from June 2016 and from October to December 2018

Description		**In percentage terms (in %) Research period - June 2016**	**In percentage terms (in %) Research period - October – December 2018**
Gender of respondents	women	55,5	54,0
	men	44,5	46,0
Age structure of the respondents	Up to 20 years old	2,0	4,0
	From 21 to 30 years old	57,5	52,5
	From 31 to 40 years old	21,0	19,5
	From 41 to 50 years old	13,0	18,0

	From 51 to 60 years old	6,5	5,5
	Over 60 years old	----	0,5

cd. Table 1.

Work experience in the company/organization	Less than 1 year	26,0	22,5
	From 1 to 5 years	41,0	46,5
	From 6 to 10 years	16,0	12,5
	From 11 to 15 years	4,0	8,5
	From 16 to 20 years	6,5	2,5
	Over 20 years	6,5	7,5

Source: own study based on the survey research

Among the respondents constituting the basis for the comparative analysis from 2016, there were 55,5% of women and 44,5% of men. The most numerous group (57,5%) were people aged 21 to 30. Then, 21,0% are respondents aged 31 to 40,13,0% are people aged 41 to 50 and 6,5% are employees aged 51 to 60, 2,0% are persons up to 20 years old. Taking into account the length of employment in the enterprise/organization, the dominant group was people employed in the period from 1 to 5 years (41,0% of respondents). 26,0% have work experience for up to 1 year, 16,0% are people working for 6 to 10 years. People with 16-20 years and over 20 years of experience constituted a group of 6,5% of the respondents. The respondents with 11 to 15 years of employment accounted for 4,0% of the surveyed.

In the second analysed research period, the number of women also dominated, they constituted 54,0% of the respondents. In terms of the age structure of the respondents, the largest group were also people aged 21 to 30 (52,5% of respondents). Taking into account the work experience in the company/organization, people employed from 1 to 5 years predominated (46,5% of respondents), 22,5% of the surveyed population are employees with work experience up to 1 year, 12,5% are people working for 6 up to 10 years. People with 11 to 15 years of experience constituted a group of 8,5% of the respondents. Next are people employed over 20 years – 7,5% of the respondents. The smallest group was represented by employees with a period of employment from 16 to 20 years (2,5% of the respondents).

On the basis of the presented data, it can be concluded that there are grounds for a comparative analysis of the respondents from the two periods considered.

Table 2. Characteristics of enterprises/organizations in which the respondents are employed – research results from June 2016 and from October to December 2018

Description		In percentage terms (in %) Research period – June 2016	In percentage terms (in %) Research period - October December 2018
The period of operation of the enterprise/organization on the market	Up to 5 years	16,5	8,5
	From 6 to 10 years	17,5	12,5
	From 11 to 15 years	15,0	13,5
	From 16 to 20 years	10,0	11,0
	Over 20 years	41,0	54,5
The geographical scope of the enterprise/organization's activity	Local market	28,5	25,5
	Regional market	20,0	13,0
	Domestic market	30,5	37,5
	International market	43,5	51,0
Type of the enterprise/organization's activity	production	33,0	38,5
	trade	24,5	30,5
	services	39,0	47,0
	others	12,5	7,0
Legal form	State-owned enterprise	27,5	30,0
	Private enterprise	68,5	65,5
	Other form	4,0	4,5
Capital ownership	Polish capital	56,5	65,0
	Foreign capital	21,0	20,5
	Mixed capital with a predominance of foreign	18,0	7,5
	Mixed capital with a predominance of Polish	4,5	6,0
	Equal share of Polish and foreign capital	----	1,0
Size of the enterprise/organization	Micro (less than 10 employees)	18,0	11,5
	Small (10 to 49 employees)	23,0	12,0
	Medium (from 50 to 249 employees)	28,0	29,5
	Large (more than 249 employees)	31,0	47,0

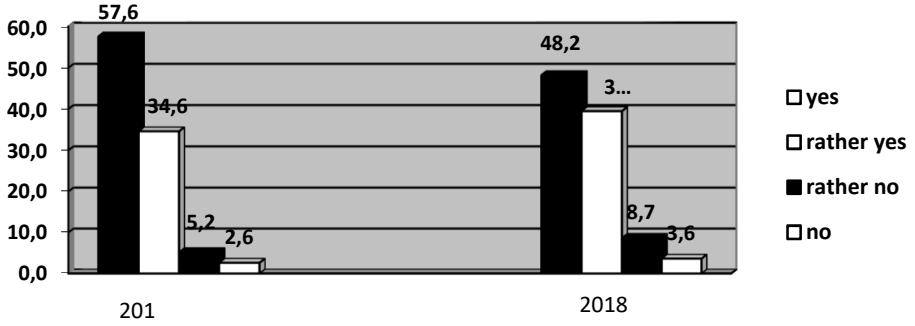
Source: own study based on the survey research

The surveyed employees were employed in business entities whose period of operation on the market was varied. The most numerous group were those that existed for more than 20 years – 41,0% and 54,5% of the entities discussed, respectively. The geographic scope was varied. Most of the surveyed entities are private enterprises. In terms of capital ownership, Polish capital dominated. Most people work in large entities employing more than 249 employees.

3. Results and discussion

The respondents commented on whether the management staff and other employees of the company/organization care about building proper relationships with suppliers. This has been presented in Figure 1.

Figure 1. Respondents' opinion on the care for building proper relationships with suppliers by the management and other employees of the enterprise/organization [%]

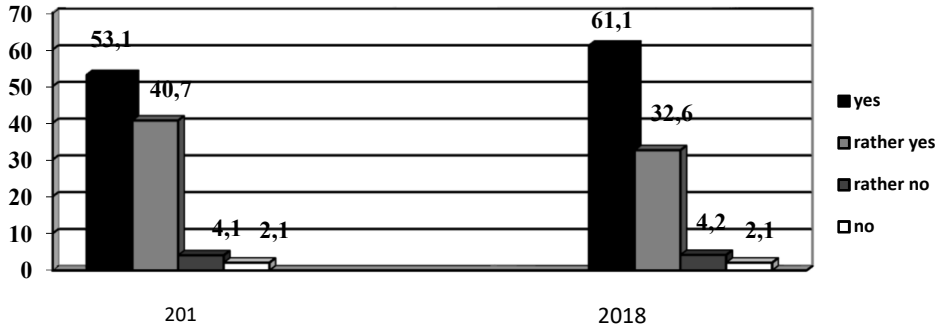


Source: own study based on the survey research

When analysing the answers of the respondents, it should be stated that in the first research period more people chose the answer yes than in the second. Moreover, there is an advantage of negative responses (rather no or no) in 2018, it is 12,3% in total, while in 2016 it is 7,8%. It is a clear signal for enterprises to consider what could be the causes of the current state of affairs.

The respondents also specified whether the management staff and other employees of the company/organization care about building proper relations with recipients. This is shown in Figure 2.

Figure 2. Respondents' opinion on the care for building proper relations with recipients by the management and other employees of the enterprise/organization [%]

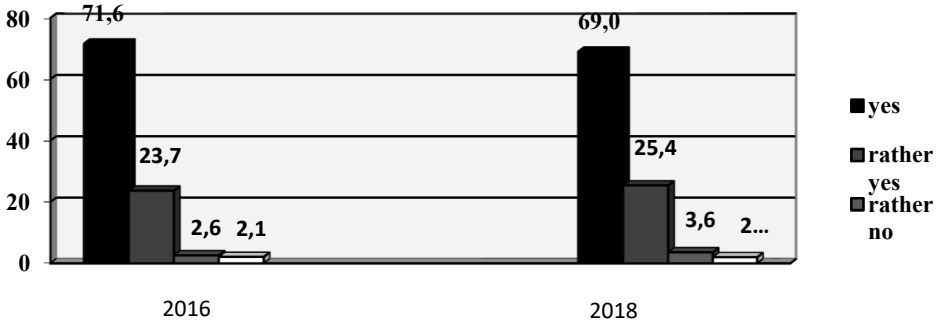


Source: own study based on the survey research

With regard to relations with recipients, an increase in the number of yes responses was recorded in the second research period. The answers no and rather no are the same.

Figure 3 shows how employees perceive building appropriate relationships with customers.

Figure 3. Respondents' opinion on the care for building appropriate relations with customers by the management and other employees of the enterprise/organization [%]

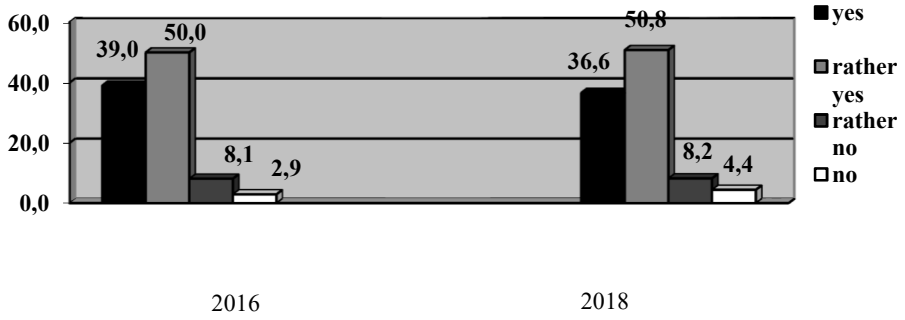


Source: own study based on the survey research

As far as customer relations are concerned, the results obtained are very similar in both analysed periods.

Figure 4 shows how employees perceive the care for building appropriate relationships by the management and other employees of the enterprise/organization with other enterprises/organizations/institutions with which the enterprise cooperates.

Fig. 4. Respondents' opinion on the care for building by the management staff and other employees of the enterprise/organization appropriate relations with other enterprises/organizations/institutions with which the enterprise cooperates [%]

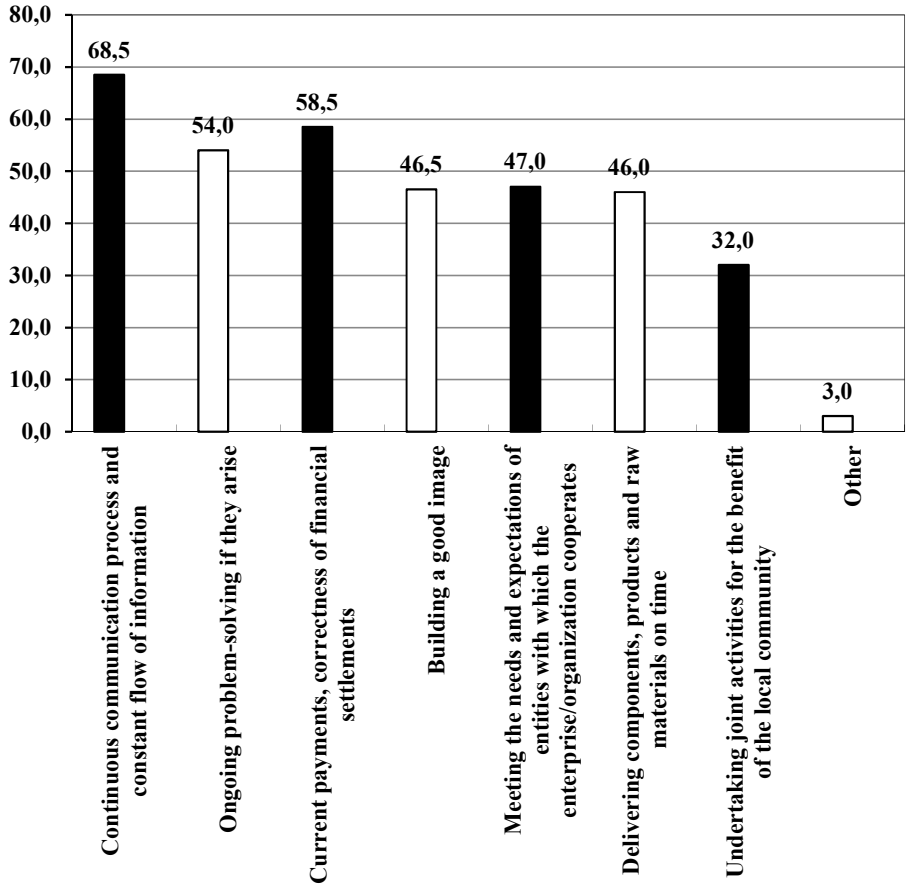


Source: own study based on the survey research

In terms of relations with the last group of stakeholders, very similar results were also recorded.

The respondents commented on what types of activities undertaken by employees of the company/organization are conducive to building appropriate relationships with: suppliers, recipients, customers and other companies/organizations/institutions with which the company cooperates. This has been presented in Figures 5 and 6.

Figure 5. Actions taken by employees of an enterprise/organization favouring building appropriate relations with: suppliers, recipients, customers and other enterprises/organizations/institutions with which the enterprise cooperates – data from 2016 [%]

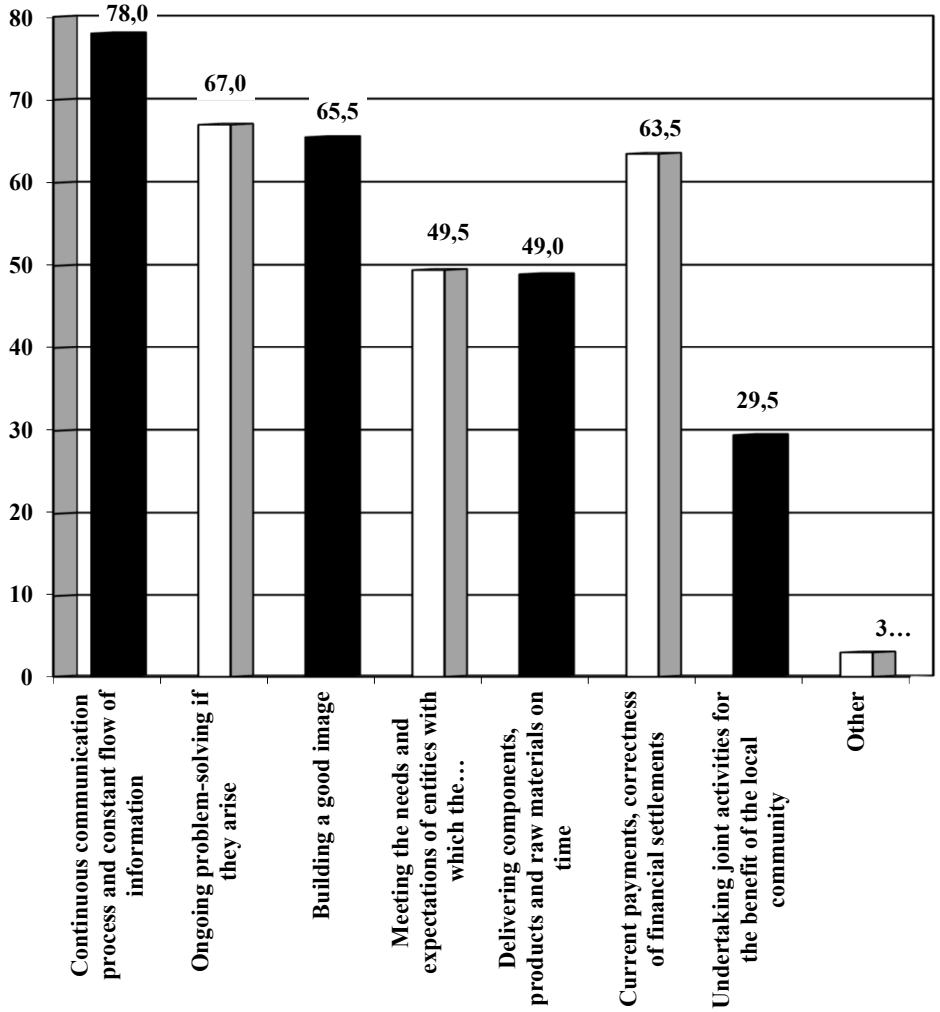


Source: own study based on the survey research

Based on the analysis of the conducted research on the first period considered, it can be concluded that the vast majority of respondents attach great importance to the process of communicating with business partners. Financial issues related to the day-to-day payments are on the second place. The third factor indicated is the ongoing solution of emerging problems together with an external partner. Building a good image requires, among other things, meeting the needs and expectations of entities with which the company/organization cooperates (these two factors occupy a very similar number of employees' indications). A similar number of indications is also taken by: delivering components, products and raw materials on time.

Then, the respondents recognized that they noticed undertaking joint activities for the benefit of the local community with business partners. A small percentage of respondents pointed to other activities, including the price effect.

Figure 6. Actions taken by employees of an enterprise/organization favouring building appropriate relationships with: suppliers, recipients, customers and other enterprises/organizations/institutions with which the enterprise cooperates – research from 2018 [%]



Source: own study based on the survey research

In the second analysed research period, it was also found that the respondents attach great importance to the process of communicating with business partners. A similar value in percentage terms is assumed by such factors as: solving emerging problems with which a given entity cooperates, financial issues and building a good image. Further positions are occupied by: delivering components, products and raw materials on time, meeting the needs and expectations of other entities and undertaking joint activities for the benefit of the local community with business partners. According to J. Guan, T. R. Lee, C. Otero-Neira, G. Svensson, and N.M. Høgevold (2021, p. 1) „Practitioners in B2B settings need to focus on joint actions as well as joint interests, and vice versa, as the economic and non-economic satisfaction of a business relationship complement each other".

In the light of the conducted research, it should be stated that employees positively assess the company's relations with its stakeholders. It should be especially emphasized that there are aspects of the functioning of the surveyed entities in terms of communication processes, which, as known, is a good platform for building relationships. It is important that this tendency continued in the analysed periods. The respondents demonstrated an increase in the activity of the surveyed entities in the field of problem solving. Furthermore, image-building activities increased by almost 20%.

"Enhancement to the relationship through increased benefits" (Padgett, Hopkins & Williams, 2020, p.13) will certainly contribute to the success on the market by enterprises in its many dimensions, and will increase their resource potential and will contribute to the multiplication of the broadly understood common good. Managers should be aware that in practice there may be "the ripple effect of one business relationship on a connected network" (Ojansivu, Laari-Salmela, & Hermes, 2022, p. 193) of mutual interactions. If it is directed towards positive action, the more benefits are achieved by economic actors and entire communities, not only in the local sense.

The presented research is part of the area of issues related to shaping the quality of relations with business partners and with a group of final recipients, i.e. clients. This quality of relationships is one of the key elements helping companies to develop and maintain lasting relationships with customers. The conceptualization of research in this area is particularly important due to the fact that, according to F. B. Naoui and I. Zaiem (2020), there are discrepancies noticed in the literature on the subject.

Let the opinion of V. Johanesová and J. Vaňová (2020) be a voice in the discussion on the role of employees in the implementation of the relationship marketing strategy. They are of the opinion that: "Above all, company must be able to communicate this strategy to its staff,

and ensure that the relationship marketing strategy is fully embraced and the organization fully aligned to it in order for the business to face the multitude of challenges for the future, and thereby develop their competitiveness" (Johanesová, Vaňová, 2020, p. 34).

Undertaking research in the field of perceiving relationship marketing from the perspective of employees is an important topic, which can be proved by the fact that: "Employees' market orientation behaviour (MOB) is crucial for a firm to respond to market changes and attain its business performance goal. Moreover, a firm must exercise the internal marketing mechanism (IMM) to prepare employees for providing superior service to satisfy internal and external customers' needs" (Li, Ko & Wu, 2021, p.1).

4. Conclusions

As a result of the conducted empirical research, taking into account the recommendations of relationship marketing, it should be stated that company employees demonstrate their awareness of their role in building relationships with stakeholders. Whether this tendency will continue depends on the management staff and the conviction that the strategic assumptions of the enterprise require systematic actions in the field of interaction with the environment. Certainly, the exchange of knowledge, constant flow of information and comprehensiveness of activities in the field of relationship management will strengthen the competitive position of enterprises on the market. The research results presented in the article may be valuable guidelines for enterprises. Moreover, they are consistent with the research results of S. Papakonstantinidis, P. Kwiatek & R. Baltezarevic (2021, p. 321), which indicate that "that to obtain short-term (e.g., sales) and long-term (e.g., propensity to recommend) results, companies should design customer relationships focusing on humans".

Quo vadis enterprise, do you open up to the environment? This is a question that every middle-level manager and top management should ask themselves.

There are still many areas to be developed in terms of undertaking joint activities for the local community. Sometimes, "bottom-up" intervention can do a lot, especially in times of crisis. The cooperation of enterprises with stakeholders provides the basis for generating "synergistic knowledge". The high level of employees' perception in terms of the environment and processes taking place inside the company affects not only the given entity as a whole, as a uniform organism, but may also become a further driver of positive changes.

Market-oriented behaviour of employees is crucial for the company to respond to changes in the market, achieve the goal of business efficiency and build lasting relationships with the environment.

Currently, the author conducts research in the field of further in-depth analysis of employees' perception of activities undertaken by economic entities in the field of relationship marketing. Moreover, it is possible to consider the issue of research on joint identification and development of market niches by business partners.

References

1. Balaji, M. S., Roy, S. K., & Wei, K. K. (2016). Does relationship communication matter in B2C service relationships? Journal of Services Marketing, 30 (2), 186 - 200.
2. Ciobanu, C.I., & Lucasea, F. (2016). Relationship marketing strategies for service firms, „Practical Application of Science", Vol. IV, Issue 3 (12), 303-306.
3. Czopek M., & Kazusek M. (2020). Customer relationship management. Strategy and system perspectives, Business Informatics, 3 (57), 34-48.
4. Dukić, B., Dugandžić, S., & Dukić, S. (2017). Conceptual CRM application database model in the function of physical products distribution for known customer. Proceedings of International Scientific Conference Business Logistics in Modern Management, http://www.efos.unios.hr/repec/osi/bulimm/PDF/BusinessLogisticsinModernManagement17/blimm1724.pdf, pp. 369-383, access date: 28.01.2022.
5. Dibb, S., & Simkin, L. (2004). Marketing Briefs: A Revision and Study Guide, Elsevier Amsterdam: Routledge.
6. Fullerton, G. (2005). The service quality–loyalty relationship in retail services:does commitment matter? Journal of Retailing and Consumer Services, 12, 99-111.
7. Gremler, D., Vaerenbergh, Y.V., Brüggen, E. C., & Gwinner K.P. (2020). Understanding and managing customer relational benefits in services: a meta-analysis. Journal of the Academy of Marketing Science, 48, 565-583.
8. Grönroos, C. (2011). A service perspective on business relationships: The value creation, interaction and marketing interface. Industrial Marketing Management, 40, 240-247.
9. Grönroos, C. (2015). Service Management and Marketing: Managing the Service Profit Logic, John Wiley & Sons, Chichester.
10. Grönroos, C. (2017). Relationship marketing readiness: theoretical background and measurement directions. Journal of Services Marketing, 31 (3), 218 -225.
11. Guan, J., Lee, T.R., Otero-Neira, C., Svensson, G., & Høgevold, N.M. (2021). Action and social alignment constituents of collaboration in B2B relationships: buyer and seller perspectives. Journal of Relationship Marketing, 21, 194 - 225.

12. Gummesson, E. (2008). Total Relationship Marketing, Butterworth-Heinemann, Oxford.
13. Gupta, A., & Sahu, G.P. (2012). A literature review and classification of relationship marketing research. International Journal of Customer Relationship Marketing and Management, 3 (1), 56-81.
14. Hunt, S. D., Arnett, D. B., & Madhavaram S. (2006). The explanatory foundations of relationship marketing theory. Journal of Business & Industrial Marketing, 21 (2), 72-87.
15. Johanesová V., & Vaňová J. (2020), What is relationship marketing and how to use it to connect with your customers. Research Papers Faculty of Materials Science and Technology in Trnava Slovak University of Technology in Bratislava, 28 (46), 29-35.
16. Keller, S. B., Lynch, D. F., Ellinger, A. E., Ozment, J., & Calantone, R. (2006). The impact of internal marketing efforts in distribution service operations. Journal of Business Logistics, 27 (1), 109-37.
17. Kowalska-Musiał, M. (2007). Morfologia relacji w ujęciu paradygmatu marketingu relacji, In O.Witczak (red.): Budowanie związków z klientami na rynku business to business. Warszawa, CeDeWu Sp. z o.o.
18. Li, E.Y., Ko, S.-F.,& Wu, Y.-L. (2021). Employee's market orientation behavior and firm's internal marketing mechanism: a multilevel perspective of job performance theory. Sustainability, 13, 6972. https://doi.org/10.3390/su13126972, pp. 1-25.
19. Luu, T. T. (2019). CSR and customer value co-creation behavior: the moderation mechanisms of servant leadership and relationship marketing orientation. Journal of Business Ethics, 155, 379-398.
20. Naoui, F. B., & Zaiem I. (2020). Relationship quality and loyalty: a modelling of the relationship through the structural equations method. Journal of Supply Chain and Customer Relationship Management, Article ID 686917, 1-15.
21. Neumann, J. L., & Laimer C. G. (2019). Proposed application of the relationship marketing in interorganizational relations. Brazilian Journal of Marketing, 19 (1), 118-131.
22. Nugroho, S. S., Dharmmesta, B. S., & Purwanto, B. M. (2019). Relationship marketing estimation model in emerging economies: dyadic versus non-dyadic approach. Organizations and Markets in Emerging Economies, 10, 2(20), 174-195.
23. Nyadzayo, M. W., & Khajehzadeh S. (2016). The antecedents of customer loyalty: A moderated mediation model of customer relationship management quality and brand image. Journal of Retailing and Consumer Services, 30, 262-270.

24. Ojansivu I., Laari-Salmela S., & Hermes J. (2022). The social impact of the Nokia-Elcoteq business relationship: Examining the consequences of legitimating relationship norms. Journal of Business Research, 149, 193-206.
25. Padgett D., Hopkins C. D., & Williams Z. (2020). Buyer dependence in B2B relationships: The role of supplier investments, commitment form, and trust. Journal of Business Research, 119, 13-24.
26. Păduraru, T., Vătămănescu, E. M., Andrei, A. G., Pînzaru, F., Zbuchea, A., Maha, L., & Boldureanu G. (2016). Sustainability in relationship marketing: an exploratory model for the industrial field. Environmental Engineering and Management Journal, 15 (7), 1635-1647.
27. Palmatier, R. W. (2008). Relationship Marketing, Marketing Science Institute, Cambridge.
28. Palmatier, R.W., Scheer, L.K., Evans, K.R., & Arnold, T.J. (2008). Achieving relationship marketing effectiveness in business-to-business exchanges. Journal of the Academy of Marketing Science, 36 (2), 174-190.
29. Papakonstantinidis, S., Kwiatek, P., & Baltezarevic R. (2021). The impact of relationship quality and selfservice technology on company performance. Polish Journal of Management Studies, 23 (1), 315-326.
30. Rafiq, M., & Lu, X. (2013). Building customer loyalty in online retailing: the role of relationship quality. Journal of Marketing Management, 29 (3-4), 494-517.
31. Ramani, G., & Kumar, V. (2008). Interaction orientation and firm performance. Journal of Marketing, 72 (1), 27-45.
32. Rashid, T. (2017). Relationship marketing on a university websites: an analysis of leeds metropolitan university website. International Journal of Management Cases, 19 (3/4), 261-269.
33. Sedalo G., Boateng H., & Kosiba J. P. (2021). Exploring social media affordance in relationship marketing practices in SMEs. Digital Business, 23 (2), Issue 1, https://doi.org/10.1016/j.digbus.2021.100017, access date 7.11.2022.
34. Sheth, J. (2017). Revitalizing relationship marketing. Journal of Services Marketing, 31 (1), 1-5.
35. Watanabe, Y. (2020). Value co-creation in Business-to-Business and Business-to-Consumer service relationships. Journal of Relationship Marketing, 19 (3), 203-228.
36. Zaif, A., & Cerchia, A. E. (2019). Integrating online marketing strategies in B2B companies, "Ovidius" University Annals, „Economic Sciences Series", Vol. XIX, Iss. 2, 614-620.

ARTICLES

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE
vol. 38. No 3 (2022) pp. 78-89
DOI https://doi.org/10.24136/ceref.2022.013

Iwona Pisz[1]
Sabina Kauf[2]

Risk and uncertainty in supply chains as a consequence of COVID-19 pandemic

Abstract

The paper demonstrates enterprises gathered in supply chains and their condition in under the COVID-19 pandemic. The COVID-19 pandemic is treated here as a black swan phenomen. The purpose of this paper is to identify the risks and uncertainty in the supply chains being a consequences of the COVID-19 pandemic. The research is based on a literature survey (LS) own research and business management practices. In addition, the authors provide some recommendations for increasing the resilience and robust of enterprises affected by the pandemic.

Keywords: risk, uncertainty, enterprise, supply chain, COVID-19 pandemic, black swan, robust, resilience

JEL classification: D21, D22

Paper type: Research paper

Introduction

Since the end of 2019 year, we have been observing permanent changes in the world and increasing risk and uncertainty in human life and in global supply chains. As we know, the highly-infectious COVID-19 Coronovirus was declared as a global pandemic by the World Health Organization

[1] PhD, University of Opole, ipisz@uni.opole.pl
[2] Prof.,University of Opole, skauf@uni.opole.pl

on 11 March 2020 (Armani et al. 2020). Although its exact origins are unknown, the COVID-19 pandemic is believed to have emerged in Wuhan, China in December 2019. A notable number of cases have resulted in hospitalization and even death (Zhou et al. 2020), globally, from the beginning pandemic to 21 January 2022 year, there have been 340 543 962 confirmed cases of COVID-19, including 5 570 163 deaths, reported to WHO (https://covid19.who.int).

The COVID-19 Coronavirus pandemic causes changes in many area of supply chains execution. Because of pandemic COVID-19 there has been a shift from medium level of risk through high level of risk to very high level risk and uncertainty of many supply chains. This is called world pandemic.

The Coronavirus can be treated like a "Black Swan" event because this unexpected and hard-to-predict event was not within the range of normal expectations of managers. The concept of Black Swan events was developed by Nassim Taleb. As we can read in his 2007 book entitled *The Black Swan, The Impact of the Highly Improbable* a black swan event has three attributes: "First, it is an outlier, as it lies outside the realm of regular expectations, because nothing in the past can convincingly point to its possibility. Second, it carries an extreme impact (unlike the bird). Third, despite its outlier status, human nature makes us concoct explanations after the fact, making it explainable and predictable." (Taleb 2007).

In a global business environment characterized by high complexity and uncertainty enterprises are forced to manage their supply chains effectively in order to increase efficiency and reactivity under the black swan event. The Covid-19 pandemic has highlighted weaknesses in the management of supply chains that have never suffered such disruptions before. Moreover, the supply chains were not even prepared for them. The outbreak of the pandemic stopped the import of many key components to countries all over Europe and beyond. This forced many entrepreneurs to take violent measures to maintain the continuity of production. As a result, it should be expected that some entrepreneurs will remodel their supply chains and approach risk management with greater care. They should undertake joint efforts to reduce potential threats in a globalized and post-pandemic world. It will entail substantial changes in the implementation of production processes and in the functioning of all supply chains.

Therefore, this chapter attempts to identify the risk and uncertainty of supply chains under COVID-19 pandemic in the context of already existing research in literature, as well as to identify key challenges that managers in the supply chains may face, in particular in the design and implementation of new redefined supply chains. In the summary, we will present the conclusions and propose directions for future research in this area.

1. Key elements of supply chains environment

Supply chains in recent years have acquired a comprehensive character, becoming the key elements of the competitiveness of many companies. Their interconnected, global nature also makes them increasingly vulnerable to a range of threats and failures. Decades of efforts to optimize supply chains to minimize costs, reduce inventory and increase resource utilization have resulted in reduced flexibility in mitigating delays and disruptions (Jüttner 2005). Although unpredictability and volatility have long been a consideration in logistics and supply chain management, the current situation shows that many organizations may overestimate their resilience to global shocks and changes in the supply chains. Disruption of any part of the value chain can affect the company's ability to continue the process, deliver goods to the market and provide key services to customers.

Over the last 20 years, supply chain management has become a more sophisticated discipline. To cope with such turbulences and the changes inherent in today's supply chains, great attention, both in practice and research, has been given to strategies that minimize supply chain risks (Bakshi and Kleindorfer, 2009; Hendricks et al., 2009; Kern et al., 2012; Sodhi et al., 2012; Wieland, Wallenburg 2012, 2013).The fundamental vision has been to create an integrated approach to a company's end-to-end supply chain, from the furthest upstream suppliers to its end customers, with participants working in concert toward common goals. Through practices such as lean manufacturing, outsourcing, and supplier consolidation, companies have made tremendous progress in achieving that vision. For many companies and their customers these efforts have led to lower costs, higher quality, shorter time to market, and increased business agility (Marchese, Paramasivam 2013).

In mid-2012, Deloitte Consulting LLP surveyed 600 executives at manufacturing and retail companies to understand their perceptions of the impacts and causes of these risks, the actions they are taking to address them, and the continuing challenges they face. Respondents represented large and small companies in a variety of industries, and from countries around the globe, with the majority located in North America, Europe and China. The Deloitte report "The Ripple Effect - How manufacturing and retail executives view the growing challenge of supply chain risk" identified over 200 significant sources of risk in the supply chain, grouped into four main categories related to (Marchese, Paramasivam 2013):

1) internal operations - from production design to distribution and returns;
2) the extended supply chain - cooperation with partners on the supply and distribution side as well as with logistics service providers;
3) the macro-environment - covering the effects of a wide variety of economic, political, environmental, social and technological events - such as the current COVID-19 situation;
4) functional support, e.g. in the areas of finance, human resources, legal or, in particular, IT, the limitations of which may lead to many problems, from the lack of required specialists to non-compliance with regulations and disruptions in the flow of key operational data.

The survey's key findings in the report include that supply chain risk is a strategic issue. There are now more risks to the supply chain and risk events are becoming more costly. As a result, 71 percent of executives said that supply chain risk is important in strategic decision making at their companies. Margin erosion and sudden demand changes cause the greatest impacts. The most common and the most costly outcomes of supply chain disruptions are erosion of margins and an inability to keep up with sudden changes in demand, which illustrates the extent to which the supply chain risk issue affects the "heart of the business." Most concern about extended value chain. Executives surveyed are more concerned about risks to their extended value chain - outside suppliers, distributors, and customers - than about risks to company-owned operations and supporting functions. Supply chain risk management is not always considered effective. Two thirds of companies have a supply chain risk management program in place, but only half the surveyed executives believed those programs are extremely or very effective. Companies face a wide variety of challenges. Executives cited a wide variety of challenges including problems with collaboration, end-to-end visibility, and justifying investment in supply chain risk programs, among others. However, no single challenge stood out, indicating the need for broad approaches. Many companies lack the latest tools. Current tools and limited adoption of advanced technologies are often constraining companies' ability to understand and mitigate today's evolving supply chain risks (Marchese, Paramasivam 2013).

2. The impact of COVID-19 – as a black swan event on the supply chains

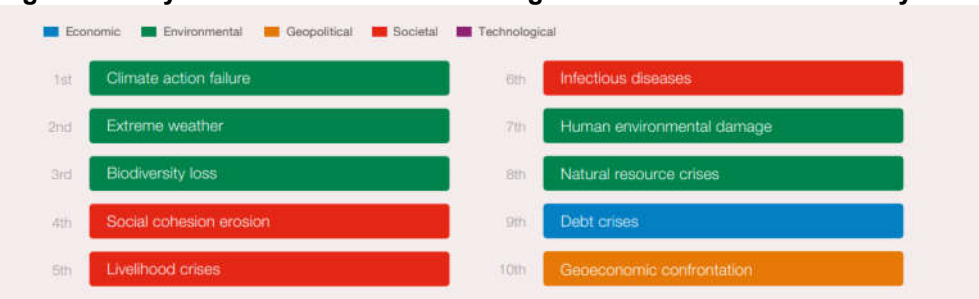
The growing interest in the supply chains management, especially in the area of risk and uncertainty management under COVID-19 conditions results in a growing of articles and reports dedicated to it. As we know,

global supply chains are one of the key elements of the economy. Any disruptions in their functioning may have consequences for the global economic and financial situation - earlier it could be observed, among others, in 2002 SARS, 2003 “bird flu” H5NI virus, 2009 the “swine flu” H1N1, in 2011, after the earthquake and tsunami in Japan, or after the catastrophic floods in Thailand in 2011 and 2012, and in 2013 Ebola virus. The full impact of COVID-19 is of course still unknown, but one thing is certain - what we are now observing will certainly be felt by global supply chains, from raw materials to finished products. We can formulate a question: could the COVID-19 pandemic be an event that will force many companies and industries to rethink and transform their supply chain model?

As we know, on one hand outbreaks of SARS (2002-2003) the “bird flu” H5NI virus (2003-2007), the “swine flu” H1N1 virus (2009), MERS (2012+), and Ebola (2013-2016) resulted in numerous studies on management of risk and uncertainty. These studies identified the need for improved global risk management systems and procedures and additionally have recommended specific measures to rapidly detect, communicate, and control the threat of such pandemic. On the other hand modeling studies of global economic impact have also been done using virus pandemic scenarios with different degrees of virulence (disease severity) and infectiousness (ease of transmission) (Verikios et al. 2011). The prepared models show significant economic impacts, driven by factors such as reduction in global tourism, workers staying at home to avoid infection, and supply chain interruptions as different regions are affected at different timings (Murphy et al. 2020).

The Global Risks Report 2021 year warned of potential knock-on economic risks that are now clear and present dangers in many area of life and economics. Supply chain disruptions, inflation, debt, labor market gaps, protectionism and educational disparities are moving the world economy into choppy waters that both rapidly and slowly recovering countries alike will need to navigate to restore social cohesion, boost employment and thrive. These difficulties are impeding the visibility of emerging challenges, which include climate transition disorder, increased cyber vulnerabilities, greater barriers to international mobility, and crowding and competition in space. The Global Risk Report 2022 17th edition identifies tensions that will result from diverging trajectories and approaches within and between countries and then examines the risks that could arise from such tensions. This year’s report also highlights the implications of these risks for individuals, governments and businesses (GRIR 2022).

Fig. 1. Identify the most severe risks on a global scale over the next 10 years



Source: The Global Risks Report 2022, 17th Edition, World Economic Forum, 2022.

Risks of global chains arise from many internal and external factors. Some are related to macro trends - with the increasing globalization of supply chains and the increasing importance of the links between them, chains become more and more susceptible to disruptions. Other risks arise from the continued drive to improve efficiency and reduce operating costs. It is typical for supply chains be faced with the pressure of maintaining short lead times and low costs. Relying on a small number of suppliers can heighten risk of SC disruption in unexpected circumstances, as seen with the global COVID-19 pandemic.

In table 1 we present the most frequently risk and uncertainty in the supply chains as a consequences of COVID-19 pandemic cited in the literature and in the supply chain practice.

Tab. 1. The risk and uncertainty in the supply chains during COVID-19 pandemic

lack of staff	delays in procurement	low level of inventories
cyberattacks	cancelled orders	increasing covid-19 restrictions
increasing demand for goods	production outbreak	reductions in mobility
low quality of goods	delays in payment	travel bans
increasing lead times	changing in routing	quarantines and curfews
increasing transportation lead time	bankruptcy of the supplier	border restrictions
increasing transportation cost	increasing purchasing cost	stay-at-home orders
reduced demand in the transportation sector	delays in cash flow	closure of various amenities and services
bankruptcy of the client	language barriers	people migration

Source: own elaboration

The operations of many organizations and enterprises gathered in the supply chains have been severely disrupted as the outbreak spread around the globe, impacting both supply and demand (Ivanov 2020). The unprecedented nature of the pandemic has meant that businesses had no prior planning and were exposed to significant risk. A survey conducted by Ernst & Young in 2019 found that of 500 senior board members globally, only 20% of the executives were confident that their companies were prepared to respond to a large adverse risk (Ernst and Young 2020). While most short- or medium-term impacts of COVID-19 can now be identified, the long-term impacts still remain uncertain. The pandemic has broken many global SCs (Araz et al. 2020), particularly for organizations with lean and globalized SC structures. In fact, it was reported that 94% of the Fortune 1000 companies have experienced COVID-19-driven SC disruptions (Sherman 2020; McMaster et al. 2020).

Another report shows that 95 percent of respondents of McKinsley & Company Report 20201 say they have formal supply chain risk management processes. A further 59 percent of respondents say they have adopted new supply chain risk management practices over the past 12 months. A small minority (4 percent) set up a new risk management function from scratch, but most respondents say they have strengthened existing capabilities. The actions taken by companies gathered in supply chains varied according to the pre-crisis maturity of their supply chain risk management capabilities. Companies with little or no risk management experience tended to invest in new software tools, while higher-maturity organizations mainly focused on the implementation of new practices (McKinsey 2021).

Additionally, we can read in the report that 92 percent of respondents claim that they improved resilience through physical changes to their supply chain footprints. As we can read in the report almost 90 percent of respondents expect to pursue some degree of regionalization during the next three years (McKinsey 2021). Could it lead to generalize new models such as lead to shorter value chains (i.e. increased local or regional sourcing)? Certainly, moving away from the “just in time” or “made- to- order” business models will have an impact on trading and transport patterns.

The proactive monitoring of supplier risks was the primary focus of these efforts. Over the past year, supply chain leaders have taken decisive action in response to the challenges of the pandemic: adapting effectively to new ways of working, boosting inventories, and ramping their digital and risk-management capabilities. Supply chains remain vulnerable to shocks and disruptions, with many sectors currently wrestling to overcome supply-side shortages and logistics-capacity constraints. In many sectors, there are signs that the rate of investment in digital supply-chain technologies is slowing down. Talent gaps are wider than ever, end-to-end transparency

remains elusive, and progress toward more localized, flexible supply-chain structures has been slower than anticipated (McKinsey 2021).

The pandemic has been a catalyst for further digitization of end-to-end supply chain processes. An overwhelming majority of survey respondents say they have invested in digital supply-chain technologies during the past year, with most investing more than they originally planned. While automotive and commodity players were reluctant to commit to additional investments amid the uncertainty of early 2020, for example, 100 percent of the respondents in those sectors eventually did so. Almost every company also plans for further digital investment in the future. Construction is the only sector in which respondents say they are less likely to invest in digital supply chain technologies in the coming years (McKinsey 2021).

In practice, companies were much more likely than expected to increase inventories, and much less likely either to diversify supply bases (with raw-material supply being a notable exception) or to implement nearshoring or regionalization strategies. Different industries have responded to the resilience challenge in markedly different ways. Healthcare players stand out as resilience leaders. They applied the broadest range of measures, with 60 percent of healthcare respondents saying they had regionalized their supply chains and 33 percent having moved production closer to end markets. By contrast, only 22 percent of automotive, aerospace, and defense players had regionalized production, even though more than three-quarters of them prioritized this approach in their answers to the 2020 survey. Chemicals and commodity players made the smallest overall changes to their supply chain footprints during the past year (McKinsey 2021).

Disruptions in the functioning of global supply chains have become an impulse to conduct research among entities located in Poland by the authors. The purpose of the research is to identify the key reasons for intensifying activities around risk management in the supply chains. In the research 137 enterprises have taken a part, including 118 with foreign capital. The research showed that the continuity of supply chains in Poland was not maintained, and companies were able to keep inventories only at a minimum level. As a result of the disruptions, many entities decided to reevaluate their activities, moving some of them to the network, in particular in terms of sales and customer service. The research also analyzed the impact of remote work on the effects of the functioning of enterprises and assessed the effects of support under anti-crisis shields. Among the most frequently mentioned by respondents were: (1) staff shortages related to the presence of some staff in quarantine and carers' leave, (2) insolvency of contractors, (3) delays in payments, (4) reduction in demand for goods offered. The pandemic has an impact on the continuity of the supply chain. In this area, respondents mainly pointed to: (1) problems

with supplies from abroad, (2) the need to keep inventories at the lowest level, (3) rupture of supply chains – lack of supply, (4) delays in deliveries, (5) disruption of supply chains – failure of the supplier. In order to mitigate the effects of the Covid-19 pandemic for many entrepreneurs, the government has developed a project called anti-crisis shield. Among the surveyed companies, slightly more than a half - 54% received aid under the Government Anti-Crisis Shield, but it must be admitted that this aid was much more often obtained by enterprises that conducted production or trade activities. From the Crisis Shield Report. A lifeline for companies and the economy? (Dębkowska et al. 2021) shows that 86% of the surveyed enterprises were beneficiaries of the solutions available in the anti-crisis shield. Most of them (92%) used more than one support instrument.

3. Conclusions

The unpredictability and instability of the supply chain environment are becoming commonplace in logistics and supply chain management. Therefore, supply chains need to be more dynamic, smarter and better informed than ever in the past in order to be able to reduce and mitigate risk. New technologies of Industry 4.0 such as the Internet of Things, Cloud, 5G, AI and robotics are key to enabling the necessary changes that will secure the functioning of organizations around the world. An unstable business environment makes this all the more necessary. With the multifaceted nature of today's risks, piecemeal solutions and one-off initiatives are no longer sufficient. Instead, companies should aim to take a more holistic approach to managing supply chain risk and achieve greater visibility, flexibility, and control. In the long run, the key will be to build a "resilient" supply chain that not only seeks to reduce risks but also is prepared to quickly adjust and recover from any unanticipated supply chain disruptions that occur. Such supply chain resilience is quickly becoming a fundamental requirement. With today's complex, global supply chains, risk cannot be eliminated-and having the ability to quickly bounce back from problems and continue business operations as efficiently as possible will likely be integral to remaining competitive.

We are now in the fifth wave of pandemic, the coming months could turn out to be critical for supply-chain leaders. We can assume that some companies will build upon the momentum they gained during the pandemic, with decisive action to adapt their supply-chain footprint, modernize their technologies, and build their capabilities. Others companies may slip back, reverting to old ways of working that leave them struggling to compete with their more agile competitors on cost or service, and still vulnerable to shocks and disruptions.

Based on the literature, published report and own research we can state that: companies that are better prepared than others have developed and implemented a supply chain risk management process and have business continuity assurance strategies. The supply chains of these companies are geographically diversified to reduce supply-side risk from any country or region. The companies use key raw materials or products from multiple sources to reduce dependence on a single supplier. Additionally, they have inventory strategies in place to protect their operations from supply disruptions in their supply chains. built strong relationships with key suppliers and implemented systems that ensure high visibility of supply networks to better understand their risks and carry out specific actions based on their priorities. They maintain the agility of their processes and production and distribution networks so that they can quickly reconfigure and maintain supply in response to global demand. These companies are investing in supply chain planning and control tower solutions to better detect and respond and even anticipate supply chain problems.

Literature

1. Araz, Ozgur Merih, Tsan-Ming Choi, David Olson, and Sibel Salman. 2020. Data analytics for operational risk management. Decision Sciences
2. Armani, Andrea M., Darrell E. Hurt, Darryl Hwang, Meghan C. McCarthy, and Alexis Scholtz. 2020. Low-tech solutions for the COVID-19 supply chain crisis. Nature Reviews Materials 5: 403–6
3. Bakshi, N. and Kleindorfer, P. (2009), “Co-opetition and investment for supply-chain resilience”, Production and Operations Management, Vol. 18 No. 6, pp. 583-603
4. Dębkowska, K., Kłosiewicz-Górecka, U., Szymańska, A., Ważniewski, P., Zybertowicz, K. (2021), Tarcza Antykryzysowa... Koło ratunkowe dla firm i gospodarki?, Gniazdowski, M., Kubisiak, A., Kutwa, K., Rybacki, J. (współpr.), Polski Instytut Ekonomiczny, Warszawa, 2021 (in Polish)
5. Ernst and Young. 2020. Nearly 80% of Board Members Felt Unprepared for a Major Risk Even Like COVID-19: EY Survey
6. Hendricks, K.B., Singhal, V.R. and Zhang, R. (2009), “The effect of operational slack, diversification, and vertical relatedness on the stock market reaction to supply chain disruptions”, Journal of Operations Management, Vol. 27 No. 3, pp. 233-246
7. Ivanov, Dmitry. 2020. Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case. Transportation Research Part E: Logistics and Transportation Review, 136

8. Jüttner, U. (2005), “Supply chain risk management: understanding the business requirements from a practitioner perspective”, The International Journal of Logistics Management, Vol. 16 No. 1, pp. 120-41
9. Kern, D., Moser, R., Hartmann, E. and Moder, M. (2012), “Supply risk management: model development and empirical analysis”, International Journal of Physical Distribution & Logistics Management, Vol. 42 No. 1, pp. 60-82
10. Marchese K., Paramasivam S., The Ripple Effect - How manufacturing and retail executives view the growing challenge of supply chain risk, Deloitte, 2013
11. McMaster, M.; Nettleton, C.; Tom, C.; Xu, B.; Cao, C.; Qiao, P. Risk Management: Rethinking Fashion Supply Chain Management for Multinational Corporations in Light of the COVID-19 Outbreak. *J. Risk Financial Manag.* 2020, *13*, 173.
12. Murphy JF, Jones J, Conner J. The COVID-19 pandemic: Is it a “Black Swan”? Some risk management challenges in common with chemical process safety. Process Safety Progress. 2020;39(2):e12160. doi:10.1002/prs.12160
13. Sherman, Erik. 2020. 94% of the Fortune 1000 Are Seeing Coronavirus Supply Chain Disruptions: Report. New York: Fortune
14. Sodhi, M.S., Son, B. and Tang, C.S. (2012), “Researchers’ perspectives on supply chain risk management”, Production and Operations Management, Vol. 21 No. 1, pp. 1-13
15. Taleb NN. *The Black Swan: the Impact of the Highly Improbable*. New York, NY: Random House; 2007.
16. The Global Risks Report 2022, 17th Edition, World Economic Forum, 2022.
17. Verikios G., Sullivan M., Stojanovski P., Giesecke J., and Woo G., The Global Economic Effects of Pandemic Influenza. Paper prepared for the 14th Annual Conference on Global Economic Analysis, Venice, June 16-18, 2011.
18. Wieland A., Wallenburg C.E., Dealing with supply chain risks Linking risk management practices and strategies to performance, International Journal of Physical Distribution & Logistics Management Vol. 42 No. 10, 2012 pp. 887-905
19. Wieland A., Wallenburg C.E., The influence of relational competencies on supply chain resilience: a relational view, International Journal of Physical Distribution & Logistics Management Vol. 43 No. 4, 2013 pp. 300-320
20. Zhou, Min, Xinxin Zhang, and Jieming Qu. 2020. Coronavirus disease 2019 (COVID-19): A clinical update. Frontiers of Medicine 14: 126–35

21. https://covid19.who.int, [available: 21.01.2022]
22. McKinsey&Company 2021, https://www.mckinsey.com/business-functions/operations/our-insights/how-covid-19-is-reshaping-supply-chains [available: 21.01.2022]