



THE PROCESS OF DIGITAL TRANSFORMATION AS A CHALLENGE FOR COMPANIES

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Abstract: In order to improve the efficiency of business management, companies are increasingly using modern technologies. The necessity of using them forces changes in the environment, among which the first one comes these that determine the durability and profitability of customer relationships. The key objective of the article is to identify the place and importance of digitization in the process of creating customer relationships and identify the key barriers for digital transformation. As a thesis, it is assumed that the primary barrier for the advancement of digital transformation is the competency barrier. On the basis of literature studies and cited research reports, this thesis has been confirmed.

Keywords: business value, customer relationships, digitalization, digital intelligence, knowledge barrier

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Introduction

Changes occurring in the environment of the contemporary organizations are so dynamic and unpredictable that nowadays one does not only speak of “new competitive landscape” (Kaplan, Norton 2002, p. 22-23), but of the phenomenon of “new normality in the economy”, in which strong turbulence (Kotler, Caslione 2009, p. 21) and the necessity of competing in the so called “flat world” are becoming the norm (Fung, Fung, Wind 2008). When speaking of the changes in the environment, one cannot omit the growing demand barrier, as well as the issues related to: increasing consciousness of the customers, growth of the knowledge parity in making purchase decisions or the increase of the exchange clarity (Brzozowska, Szymczyk 2017). These factors result in the change of bargaining power of the participants of the market game in favor of the customer (Dobiegała-Korona, Doligarski 2010).

For the subjects, not only from the business sector, it means the necessity of, one hand, creating unique customer value while, on the other hand, minimizing the costs of his/her satisfaction. Meeting this challenge is linked to the necessity of acquiring and developing knowledge resource, the source of which can and should be the customers (Caputa 2015a, p. 141-150). Furthermore, in the world of “immediacy”, time becomes the key factor of competitive advantage. As a consequence, nowadays the following are becoming some of the main driving forces: computer, development of the internet and development of information and

computer technologies that make the flow and processing of information in real time possible.

The main goal of the goal of this work is to present the place and significance of digitization and digitalization in the process of creating relations with the customers as well as the identification of the degree of advancement of the process of digital transformation in practice along with the challenged arising from it. The realization of that goal was based on literature studies and reports from research conducted by the subjects from the business environment.

Digitization and digitalization – conceptual dilemmas

Both the terms of digitization as well as digitalization are relatively new concepts that appeared in common usage together with the widespread access and use of the Internet network as well as the development of information infrastructure and technologies that accompanied this phenomenon.

In the general terms, the concept of digitization is identified with the transformation of information coming from the objects of real (analog) world into their digital representation (Ober 2005). It does not, however, mean that this concept can be reduced to scanning. Digitization is a set of actions aiming at the processing of the analog resources into an equivalent and available digital resource. These activities can be ordered into a sequence of processes focused on: preparing, formatting, describing and sharing resources, with their final result being a digital (2D or 3D) copy that is available for the users through the Internet or by other channels for a long period of time. An integral element of the process identified in such a way are also the activities focusing on maintaining digital copies and metadata, backup copies and planning for the future (*Zalecenia dotyczące ...*, 2011, p. 9). In effect the term of digitization should be connected with the change of form and by that with “the transformation of a real, physical world, one or more of its components into a digital equivalent” (*Definicja cyfryzacji*, 2014). One should remember, however, that when following the change of form there is a change of content and the digital recording itself is the beginning of potentially infinite process of widening. In effect, the term of digitization is often identified with the concept of digitalization which is reflected not only in everyday use, but also in domestic and international publications (*Nowy leksykon PWN*, 1998, p. 14-19).

Nevertheless, number of authors point out a number of differences that exist in this area. Thus, we can speak of a narrow and wide meanings of this word. In the narrow approach digitization is the synonym of digitalization. The wide approach, however, connects it with the adaption and the increase of utilization of digital and computer technologies by the subjects from the public and business sectors, economies and countries etc. (Brennen, Kreiss 2014; Skowron-Grabowska et al. 2017).

In this approach the emphasis is placed not only on the digital technology but also on the possibilities of using it in various aspects of social and economic life. Therefore, in contrast to digitization, digitalization in the wide meaning of this word has a holistic dimension. It is a complex concept, that possesses the

characteristics of a doctrine, based on three mutually interconnected and occurring elements together: computerization, informatization and networking. Therefore, it is, as stated by J. Pieriegud “a constant process of convergence of the real and virtual world”, that becomes the main engine of innovation and changes in the majority of the sectors of the economy (Pieriegud 2016, p. 11).

Digitalization in creating customer relations – new business models

It cannot be disputed that digitalization is one of the most characteristic features of the contemporary economies, but also one of the most dynamic changes, the intensity of which is currently stimulated by such factors as: the Internet of things, ubiquitous communication, applications and services based on cloud computing, analytics of large data sets and large data operating as a service, automatization and robotization as well multichannel and omni-channel distribution models of products and services (Pieriegud 2016, p. 11; Kopishynska et al. 2016, p. 105-112). These factors cannot remain without any influence on the activity of subjects creating value (bidders), as well as the behavior of those who, thanks to acquiring it, can meet their multidimensional needs (customers). As a consequence, they determinate every relation, the input of which creates customer value and output customer value assessed from the perspective of achieving the objectives of the owner (Brzóska, Jelonek 2015).

Although in the subject literature customer value is defined in various ways (Caputa 2015a, p. 63-73; Kazarkiewicz 2007; Piercy 2003, p. 9-20), generally, there is consensus that it is a subjective and therefore a dynamic category. Because of it, it is not hard to prove that its identification requires systematic acquiring of data concerning customer needs, and also the tasks given to the product by the customer to be sold in the particular conditions of the exchange. These tasks can be of functional, emotional and social character. For this reason, customer value becomes inextricably tied not only to the value of the offer, described by such categories as: price, quality, functionality etc., but also by the values that remain in relation with the customer’s emotions, that are reflected in the value of the brand and relation, as perceived by the customer. These values are not created on the basis of one transaction or even a series on transactions but of maintained satisfaction, closeness, trust and customer engagement (Bruhn 2001, p. 58; Caputa 2015b, p. 20-25; Krafft 1999, p. 526; Storbacka, Stradvik, Grönroos 1994, p. 26; West, Ford, Ibrahim 2006, p. 18). Thus, it cannot be disputed that the identification of customer value needs to be of continuous character. At the same time it requires the identification and measurement of something, that despite not being of financial character (Brzozowska, Bubel, Kalinichenko, Nekrasenko 2017, p. 548-549) eventually through a complex change of cause and effect relationships decides about the capital supply of the subject.

Digitalization, based on computerization, informatization and networking makes it possible not only to acquire in real time the multidimensional data concerning customers, their expectations, behaviors and preferences, but also, in a relatively short time, to process enormous quantities of multidimensional data in a

way allowing, among others: detecting hidden factors determining value, identifying and analyzing cause and effect relationships, creating behavior models or detecting trends and presenting simulations concerning future behaviors and events (Kalinichenko, Havrysh, Perebyynis 2016, p. 389-395). This undoubtedly supports the bidders in recognizing and understanding customers and as a result, in the identification of values desired by the customer, the channels for providing them and the ways to communicate it. (Krawczyk-Sokołowska, Ziółkowska 2013, p. 14-19). The consequence of that is the possibility of designing such an architecture of actions and processes that secures effective resource allocation.

It remains in a direct relationship with providing excellent customer service and customer experience. It has special significance in, among others, e-commerce industry, the development of which is a derivative of the skill of meeting customer's needs. It requires knowing not only his/her preferences but also behaviors. As a result, the area of user experience is currently considered to be "the most important battlefield in trade" (Gartner, 2017). Chances for victory are on the side of the one, who: personalizes relationships, analyzes purchasing path and conducts extended trade which is impossible without the implementation and utilization of digital technologies.

However, it needs to be emphasized that the significance of digitalization in the process of creating value cannot be reduced only to creating databases or the phase of value creation for the customer and the process of its creation. Digitalization also includes robotization and automatization of actions, better ergonomics – ease and speed of access and propagation, possibility to receive and transfer data and information from many and to many subjects (Szwajca 2017). Thus, in the world of "immediacy", digitalization, by supporting creation, spreading and communicating the value offered without delays or even in advance, becomes a key factor of improving the effectiveness and efficiency of the value creation process.

It is also hard to neglect the significance of digitalization in the process of creating relationships based on cooperation and interaction, which secure a permanent flow of benefits. These relationships are based on a mutual flow of information, its coding, processing and utilization. Computerization, informatization and networking makes not only the information transfer itself possible but also the exchange of experience and hence creation of knowledge resources of all subjects taking part in it (Brzozowska, Gałych 2015, p. 21-22). In such a way it secures the inclusion of the customer in the process of creating value and generally makes it possible for everyone who has necessary qualifications to become an employee (Caputa 2016). The consequence of that is such a value for the customer that makes it possible to acquire customers in the global environment.

In the light of the arguments presented below it is not hard to prove that the digitalization, by supporting the process of customer communication, the course and organizations of operational processes in the areas in which the value is created, as well as the selection of target markets and customers, supports the execution of two classic strategies of enterprise operations, the development strategy aimed at profits increase and a cost strategy concentrated on cost reduction. However, these strategies, due to being based on digital transformation,

and therefore an organizational change of a special kind, based on the utilization of digital technologies in order to radically improve the efficiency or achievements of the organization, require the designing and implementation of new business models that: offer “special value” to each customer, “special” way of creating and providing the value offered, “special” way of communicating value on the market and “special way” of communicating with market participants. These models are based on different, often revolutionary schemes, the examples of which are presented in *Table 1*.

Table 1. Chosen examples of “revolutionary” business models

BUSINESS MODEL	ENTERPRISE	DESCRIPTION OF THE BUSINESS MODEL
Free Model	Google, Facebook, Snapchat	The end user has free access to the service. The operator plays the role of the service provider, but receives income from advertising and sales of information regarding preferences of the consumers that are the users of the free service.
Hipermarket	Amazon, Zalando, Coolblue	Enterprises operating in e-trade, offering a very wide assortment of goods and services, often providing products or service on an exclusivity basis.
Subscription model	Netflix, HelloFresh, Dollar Shave Club, Kindle, One	The user is paying a constant fee for the access to the offered product/service.
Freemium Model	Spotify, Dropbox, LinkedIn, Skype, The New York Times, Farmville	The product or service (most often software, computer game, internet service) is offered for free, however, the use of advanced functions or getting certain virtual goods requires a premium version to be purchased.
Market space	eBay, Alibaba, Friendsurance, priceline.com, Upwork	The enterprise provides a platform for transactions made by third parties.
Experience	Apple, Tesla, Disney World, Tomorrowland	Companies utilize the tendency of users to pay more, based on the previous experiences with using the products or the contact with the company.
Pyramid	Amazon, other e-shops	Companies generate a large share of their incomes through subjects cooperating with them and through sellers of other goods.
On Demand	Uber, Operator, Task-Rabbit	Companies offer products/service available for the users “immediately” in the moment of the demand being created.
Ecosystem	Apple, Google	Companies create a closed ecosystem of products and services, which forces the users purchase more products of the same company in the future.
Access over Ownership	Zipcar, ParkCirca, Peerby, Car2Shar	Users can use the service without the need to purchase the product which is utilized during the course of using the service.

Source: (Caudron, van Peteghem 2014. After: Pieriegud 2016, p. 19)

As it can be seen from the above, the enterprises utilizing new models offer various products, connecting various branches of industry in which they reach the customers through marketing omni-channels. Thus, they gain a possibility to: acquire customers on a global scale, create attitude and behaviors of the market game participants with the cooperation of virtual communities, or transferring and acquiring in real time information supporting the process of creating value which in a significant way allows turning the customer into a low-cost employee of the enterprise.

Achieving the aforementioned benefits requires strict integration of all business processes in the enterprise, among which those gain special significance that secure the creation and development of customer relationships. This statement is fully supported by the J. Konieczny's – Leader of Oracle Digital in Poland – opinion, who stated "digital strategies will succeed only when everything will be connected with each other by the way of a specially created "infoway". The integration of systems that are on the first line of contact with the customer (so called "front-end") and those working in the back (so called "back-up") is especially important. Such a connection makes it possible to modify the processes and business modes more easily, according to new, unexpected contacts of the customers" (*Transformacja cyfrowa ...*, 2017).

Digital transformation in corporate practice – competency barriers

Digital transformation, in its nature, is a response to challenges linked to a rapid growth of digital technologies. This transformation is based on four foundations indicated in *Figure 1*, which are its driving factors at the same time. Each of them grounds on a range of supporting technologies, determining their multi-dimensional utilization.

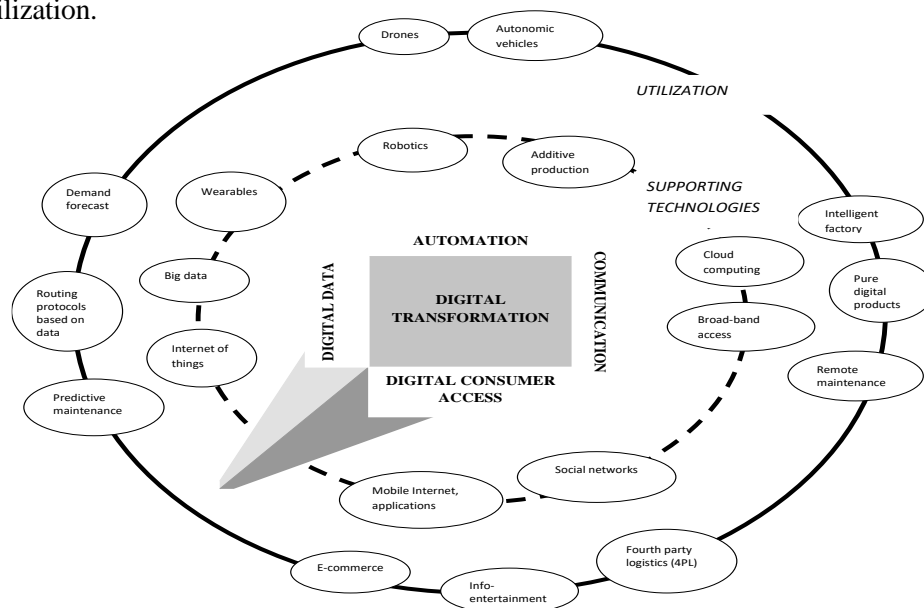


Figure 1. Factors driving digital transformation of industry

Source: (*The Digital Transformation ...*, 2015).

It should be emphasized that for the companies performing in such industries as: media and entertainment, financial services, telecommunication, new technologies or retail sales, digital transformation is not only a condition of more effective utilization of resources and creation of competitive advantage but also a condition of their survival.

The key significance of digital transformation for the development and survival of businesses is confirmed by a number of research, for example:

- research conducted in 2015 among the managers of higher level revealed that in the next few years digitalization in the sectors “driven by data” may oust 40% of companies that currently have a strong position in their industries (Pieriegud 2016, p. 14);
- research conducted by Dell Technologies showed that 78% of businesses think that start-ups from digital industry pose or will pose a threat for them in the future. In the aforementioned research, as much as 45% of respondents representing global corporations indicated that their market offer may turn out to be out of date in the nearest 3-5 years, due to increasing competition from start-ups that were established in the digital era ([http://www.virtual-it.pl/...](http://www.virtual-it.pl/));
- research conducted by Vanson Bourne, amongst the sample of 400 leaders of medium-size and large enterprises in 16 countries and 12 industries. The research demonstrated that as much as 52% of respondents experiences serious disturbances in their industries, caused by digital technologies and “Internet of everything”, furthermore, almost a half of them (48%) does not know how their industries are going to look like in three years. In result, for the greatest share of enterprises, digital transformation becomes a specific challenge, which despite providing some possibilities, still overwhelms, and is additionally connected with an increasing risk and uncertainty of the nearest future ([http://www.virtual-it.pl/...](http://www.virtual-it.pl/)).

In the light of presented research, digital transformation of a company is not only a necessity but also a condition for continuation and development. As a consequence, the businesses face a specific challenge of not just buying and implementing modern technologies, but mostly of their effective utilization.

Achievement of this objective is linked to the digital maturity of businesses (so called digital intelligence), which translates into the ability of organization to use digital technologies in a profitable way. Therefore, the following issues are interesting:

- what capacity is possessed by Polish enterprises,
- whether there are difference in that matter in comparison with foreign counterparts, and if so, then:
- what the basic barriers are for the increase of advancement level for digital transformation.

When answering to the first aforementioned question, one may refer to the conclusions coming from *Digital IQ Report*, which generally points to a fall of

confidence in digital capability of not only Polish enterprises¹. As it results from the report, only half of the respondents assessed digital intelligence of their companies as high or very high, what means a fall by 25% in comparison to year 2014/15 (PwC 2017).

Among the reasons for such state of things competency gap comes first. Its existence is indicated by accordingly, 69% of respondents in Poland and 63% in the world. It is worth noting that in the opinion of both distinguished respondent groups this gap will be increasing. In this case the number of indications is similar (38% Poland and 39% world).

The results of research presented in *Table 2* point to “digital lag” of Polish enterprises. It is especially visible in terms of such competencies as cyber security, significance of analytics in companies or consumer experiences.

Table 2. Digital competencies of enterprises in the light of research (in %)

Competencies	Competencies of key significance for the company			Well-developed competencies		
	World	Poland	Difference	World	Poland	Difference
<i>Cyber security and data protection</i>	83	58	25	64	56	8
<i>Data analysis</i>	82	67	15	59	51	8
<i>Implementation of new technology in business</i>	79	73	6	48	36	12
<i>Suitability assessment of emerging technologies</i>	78	67	11	53	40	13
<i>Designing of technological architecture</i>	78	64	14	58	51	7
<i>Customer experience in the development of customer-oriented solutions</i>	61	40	21	38	40	2

Source: Own work based on (PwC 2017)

Taking into account the significance of digital transformation for establishing, retaining and development of customer relationship, it is worth paying attention to the last of the aforementioned competency gap. It emerges on the one hand, caused by competencies concerning information gaining and utilization about the transactional customer behavior, on the other hand, by the transformation of knowledge gained from customer for customer, what negatively translates into to the process of creating both, market and resource customer potential, and what follows it, the value of the company itself (Caputa 2015a). In the area of well-developed competencies, the greatest differences concerned the competency assessment in terms of suitability assessment of emerging technologies and implementation of new technologies in business.

¹ This report summarizes the results of global research conducted by Oxford Economics, commissioned by PwC. 2216 respondents from 53 countries representing IT departments from various sectors took part in the survey.

However, it should be emphasized that over 29% of respondents from Poland points to a lack of competencies inside the company, and in case of foreign respondents such lack of competencies is indicated by every fifth interviewee (17%). A weaker internal competency of domestic enterprises could be improved by the use of external resources. According to the respondents, who highly assessed internal digital competencies of their companies, such activities were declared by 34% of respondents from Poland and 44% of foreign respondents. In result, foreign enterprises show a higher inclination to launching resource leverage, that is increasing own competencies with partner's competencies (Caputa 2003, p. 278). These activities, in the opinion of 42% of interviewees from abroad, allow the company not only to reduce costs, but also improve and facilitate the digital processes. In case of respondents from Poland it is only 25%.

Digital intelligence finds its expression also in the ability of proper designing and implementing of innovation processes as well as cost and effect assessment of the utilization of IT. Unfortunately, both in Poland (62%) and in the world (67%) more than a half of enterprises does not possess own teams dealing with technology exploration, and services of this type are commissioned outside. For this reason, it is difficult to be amazed with the fact that 54% of companies have a problem with the integration of innovation strategy with company strategy, what negatively translates into the process of value creation. It is not only about idle cash flow but also about chaos and ineffective use of time, being one of key resource of achieving competitive advantage in the era of strategic discontinuity. At the same time, the approach above may show a passive attitude of companies towards innovation, even despite the declaration by 71% of interviewees that in their enterprises a systemized approach to IT evaluation has been developed.

In this context it is worth paying attention to, identified in the course of research and presented in *Figure 2*, the three leading priorities in terms of conducting innovative activity, which confirm the aforementioned competency gap in both types of enterprises, domestic and foreign.

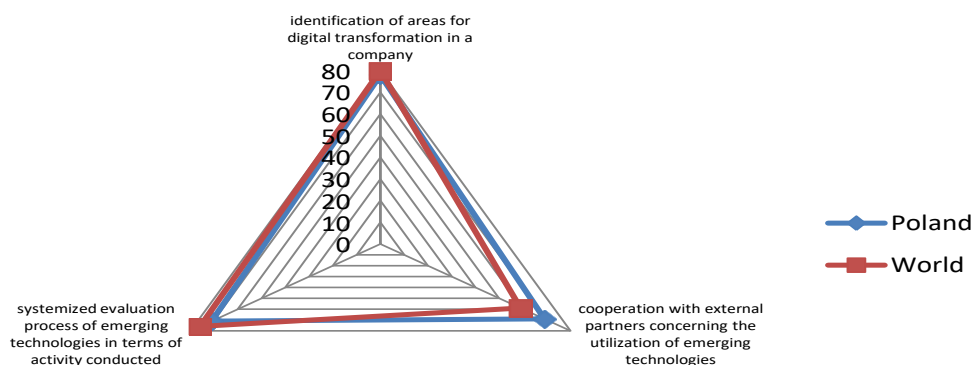


Figure 2. Priorities of conducting innovative activity in the light of research (% of indications)

Source: Own work based on (PwC 2017)

Its existence is also confirmed by the results of other research, including the research, mentioned before, conducted by Dell Technologies among the company customers. On their basis, bearing in mind the digital transformation indicator², the business structure was established, presented in *Figure 3*. A dominant share in this structure belongs to the enterprises named as “cautious” or “followers”. These subjects either gradually deal with digital transformation, developing plans and making investment with future in mind (cautious) or have only just begun making plans in that matter (followers).

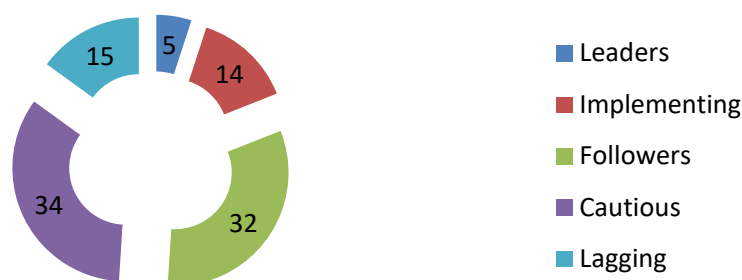


Figure 3. Degree of digital transformation advancement in the examined enterprises

Source: Own work based on Dell Technology (after: [http://www.virtual-it.pl/...](http://www.virtual-it.pl/))

Only 5% of the subjects were qualified to the leader group. Almost the same amount of companies is at the stage of plans execution or a lack of such plans, and what is connected, plans implementation or investment in this area. In result, most of the examined enterprises face the necessity of accelerating digital transformation.

Conclusions

In the light of the research results presented, digital transformation should be considered as the basic challenge that the enterprises have to face. It is not only a competitive factor, but more and more often the condition of establishing and developing customer relationship. This relationship, determining capital supply for the company, also drive its continuation and development (Caputa, Paździor, Krawczyk-Sokołowska 2017, p. 102-105). The research confirmed the thesis that the basic barrier of increasing the degree of digital transformation advancement, both in domestic and foreign enterprises, is competency gap. Nevertheless, it does not change the fact that the degree of digital transformation advancement in the foreign subjects is higher, what may be connected with a greater inclination and ability of utilizing the competencies of external partners.

² This indicator evaluates the business advancement in the area of digital transformation.

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PROCES TRANSFORMACJI CYFROWEJ WYZWANIEM DLA PRZEDSIĘBIORSTW

Streszczenie: Dążąc do poprawy efektywności gospodarowania, przedsiębiorstwa coraz częściej korzystają z nowoczesnych technologii. Konieczność ich wykorzystania wymuszają zmiany w otoczeniu, wśród których na plan pierwszy wysuwają się te, które determinują trwałość i rentowność relacji z klientem.

Zasadniczym celem artykułu jest wskazanie miejsca i znaczenia cyfryzacji w procesie kreowania relacji z klientami oraz identyfikacja kluczowych barier hamujących transformację cyfrową.

Jako tezę opracowania przyjęto, że podstawową barierą wzrostu stopnia zaawansowania transformacji cyfrowej jest bariera kompetencyjna. Na bazie studiów literaturowych oraz przytoczonych raportów z badań teza ta została udowodniona.

Słowa kluczowe: bariera kompetencji, cyfryzacja, inteligencja cyfrowa, relacje z klientami, wartość przedsiębiorstwa