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## Foreword

The intensifying competitive struggle between corporations, but also between economically integrated regions means that knowledge of management and information about competitors, changing economic processes and social phenomena often determine the competitive advantage and even the survival of an organization. In the last decade, the demand for this knowledge has relatively increased, the number of managerial and specialist positions in this field has almost doubled. Their largest increase has occurred in modern, fast-growing industries, for example, such as electronics, the IT sector, automation and telecommunications, banking, insurance and tourism.

Although even deep knowledge of managers in the field of organization and management theory does not guarantee a company success, its skilful practical application significantly reduces the degree of risk of business activity.

While the issues of the articles are varied, they are characterized by similarity of the research approach. The submitted works are dominated by a diagnostic and decision-making approach, limited in scope to selected areas of an enterprise's or institution's activity. They contain a description of the benefits of implementing management methods, for example: the use of modern IT tools and technologies in making strategic decisions in the tourism services sector, or identifying a threat to financial investments in Ukraine, the use of an interactive concept of personnel risk assessment in an enterprise, and assessing the effectiveness of corporate governance mechanisms in companies with the participation of the Treasury, as well as the use of multi-criteria assessment of the development of work potential, paying particular attention to ways of shaping the motivational potential of work. Further work presents the development of new manufacturing fields in the financial services sector (FinTech) and in the property insurance sector, e.g. an increase in assignment of reinsurance premiums.

The journal is the work of our university's research and teaching staff as well as employees from other universities and research centres in the country, i.e. the SGH Warsaw School of Economics, the Maria Curie-Skłodowska University in Lublin, the University of Warmia and Mazury in Olsztyn, the University of Szczecin, the University of Rzeszów, SWPS University of Social Sciences and Humanities, Jan Kochanowski University in Kielce, the Jacob of Paradies University in Gorzów Wielkopolski, as well as abroad, i.e. Neapolis University Pafos (Cyprus), University of Piraeus (Greece), Ivan Franko National University of Lviv (Ukraine).

In the articles, the reader can find many original theoretical approaches and practical insights. For this reason, *The Malopolska School of Economics in Tarnów Research Papers Collection* can be an interesting and useful item for theoreticians in organization and management and tourism, as well as for students and practitioners.

On behalf of the authors and myself, I would like to thank everyone who contributed to the issue of this journal—my colleagues, Editors, who took the trouble to give opinions on the articles sent for publication, Reviewers for substantive, important and often detailed comments, as well as the entire Editorial Team and the group of collaborators.

*Leszek Koziol*  
Editor-in-Chief

# ECONOMICS AND FINANCE



# Reinsurance of insurance companies in the chosen groups of the second sector on the Polish market within the period of 2017–2018

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**Abstract:** The aim of this article is to evaluate the level of reinsurance used by Polish national insurance companies in the second insurance sector and in its certain groups within the period of 2017–2018. The conducted analysis shows that over the period 2017–2018 both in all the financial insurance (the second insurance sector) as well as in its particular groups like motor third party liability insurance or motor own damage insurance for land vehicles there is a trend of an increase of ceded premiums starting from 2009. The level of premiums in the second sector has doubled and in the case of motor third party liability insurance and motor own damage insurance it has tripled. Such an increase results from two factors. On the one hand, there are higher capital requirements concerning capital requirements for insurance companies with large exposures due to Solvency II. The second factor is the increasing insecurity as far as the future payments are concerned. The increase in the ceded premiums in financial insurance in the analyzed period was not as dynamic as in case of motor third party liability insurance or motor own damage insurance between 2010 and 2016, still it doubled, so the pace of the increase was comparable to the increase of the ceded premiums in the whole insurance market. The highest level of the ceded premiums was observed in group 14 and it amounted about 65% of the total value of the ceded premiums. The percentage was much lower in groups 15 and 16 and it was 52% and 40% respectively. The trend of growth in ceded premiums to the reinsurer in those groups has been stable since 2010.

**Keywords:** reinsurance, motor insurance, financial insurance

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## 1. Introduction

The aim of this article is to evaluate the level of reinsurance used by national insurance companies in the second insurance sector and in its certain groups between 2017 and 2018. The chosen groups are as follows: motor own damage insurance for land vehicles except for railway vehicles (group 3), liability insurance of all types, possession and use of land self-propelled vehicles insurance together with the carrier's in-

insurance (group 10) as well as financial insurance, particularly credit insurance (group 14), insurance guarantee (group 15) and all financial risks insurance (group 16).

To evaluate the level of reinsurance in particular groups and in the whole second insurance sector the author used the analysis of the data concerning the reinsurers' share in gross premium written, reinsurers' share in gross payment on claims, reinsurance commissions, reinsurers' profit sharing and reinsurers' share in change in the provisions for unexpired risks. The statistical reference data used in the analysis comes from the Internet database of Polish Financial Supervision Authority and Polish Chamber of Insurance.

## 2. Reinsurance

Reinsurance is one of the basic tools used in the risk management process in insurance companies. From the very beginning of its existence till the early nineteenth century reinsurance served only technical and insurance functions so it was only a collateral for the insurance companies' operation. The second period of reinsurance development took place over the interwar period and was characterized by a further dynamic growth in the number of professional reinsurers—in 1927 there were about 127 of them in the world. The third period of development was after World War II which was also characterized by the dynamic development of capitalism. The development of reinsurance made the insurance expansion possible. It was possible as the risk was divided between the insurers and reinsurers and as a result the companies were able to accept even the highest financial risks. As a result, there were more unprecedented cumulations of risks and more dangerous risks required multiple division. It would not be possible without the constantly growing reinsurance market. The period of 1970s and 1980s was the time of the particularly dynamic growth of the reinsurance market, mainly in Europe and North America.

Asian markets were developing at a slower pace, still, since 2010 a considerable growth has been visible there. Since 2010 there has been an upward trend in the world reinsurance, and the most prominent reinsurers like German *Munich Re* and Swiss *Swiss Re* report substantial net premium income amounting to 30 billion USD. Global reinsurers “generate almost 230 billion dollars premium income yearly, providing their shareholders with total return on investment at the level of 20% in comparison to 13% for the whole insurance sector” (Domański et al., 2018, pp. 6–8).

Reinsurance can be defined as “an agreement concluded between the insurance company and the reinsurer, on the basis of which there is a risk-sharing or giving the risks up in such a way that the insurer remains solely and entirely liable to the insured” (Monkiewicz [ed.], 2000, p. 126). There are two types of reinsurance which can be distinguished, namely: outwards and inwards reinsurance. The first type is “the agreement, in which the insurance company cedes all the covered risk or part of it to some other insurance company (reinsurer), which commits to pay this insurance company part of the compensation or benefits paid to the insured” (Gąsioriewicz, 2004, p. 151). In the inward reinsurance “the reinsurer takes the substantial part of the risks waived by the insurer—the assigner” (PTR, 2019). Taking into consideration the factor of risk division between the assigner (the insurer) and the reinsurer, reinsurance may be divided into proportional and non-proportional. In the first case “the insurer and the reinsurer participate in a given risk, premium and damages in the same proportion” whereas in case of

non-proportional reinsurance, the insurers and the reinsurers do not share the damages in established proportions and they may not even share some damages at all. The insurer covers all the damages based on net retention (PTR, 2019). While talking about the character of contractual obligations of the reinsurance contract contracting parties, reinsurance may be divided into obligatory (compulsory) reinsurance and reinsurance on the facultative basis (the optional one). In case of the obligatory reinsurance “the assigner undertakes to cede all the risks from the reinsured insurance portfolio and the reinsurer is obliged to assume the risks” (PTR, 2019). In case of the facultative reinsurance the contracting parties conclude a reinsurance contract willingly and on the mutually and voluntarily negotiated conditions (Gastel, 2004).

In motor insurance (groups 3 and 10) “obligatory and proportional and non-proportional are the most common reinsurance types, whereas the facultative type is rarely applied” (Grzebieniak, 2008, pp. 51–63) and in financial insurance (groups 14–16) the most common are the facultative proportional and non-proportional reinsurance and obligatory non-proportional reinsurance. The obligatory non-proportional type is not very common (Grzebieniak, 2009a).

### 3. The level of reinsurance in the second insurance sector over the period of 2017–2018

The Figure 1 shows the reinsurers’ share in the gross written premium in the second sector over the period of 2017–2018.

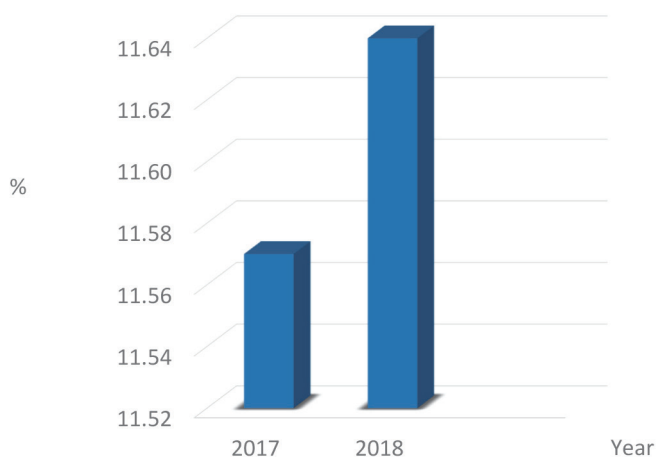


Figure 1. The reinsurers’ share in the gross written premium in the second sector over the period of 2017–2018

Source: Author’s own elaboration based on: KNF, 2019; PIU, 2019.

Figure 1 clearly shows that in 2018 insurance companies increased the range of the risks ceded to the reinsurers from 11.57% to 11.64%. Taking into consideration both data as well as the one from Figure 2 (which indicates that the share in gross payments on claims has fallen from 9.52% to 8.40%) it may be stated that the reinsurance contracts in the second sec-

tor were mainly non-proportional. They were most likely obligatory, rarely facultative as the highest share in the second sector is motor insurances, where such types of reinsurance dominate. In 2017 up to 20.5% of motor vehicle liability premiums was ceded to the reinsurer and casco premiums amounted about 6% (Domański et al. 2018).

The share of reinsurers in gross payments on claims in the analyzed period looks slightly different.

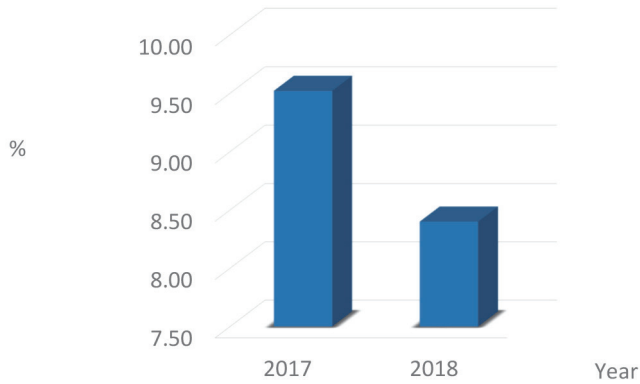


Figure 2. Reinsurers' share in all gross payments on claims in the second sector over the period of 2017–2018

Source: Author's own elaboration based on: KNF, 2019; PIU, 2019.

Less involvement of the reinsurers in gross payments on claims is usually connected with higher reinsurance commissions and higher shares in reinsurers' profits which are obtained by insurers—they have raised from 1.7762 billion PLN in 2017 to 1.9778 billion PLN in 2018, which is confirmed by the data shown in Figure 3.

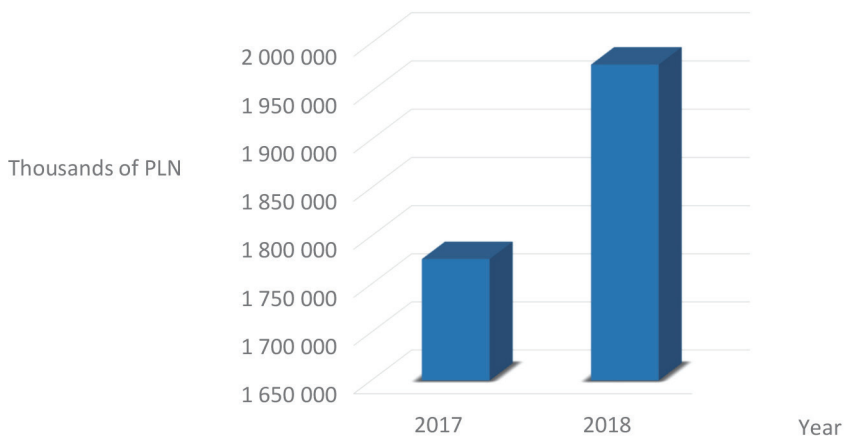


Figure 3. Reinsurers' commissions and shares in reinsurers' profits in total in the second sector over the period of 2017–2018

Source: Author's own elaboration based on: KNF, 2019; PIU, 2019.



Figure 4 shows data concerning reinsurers' share in change in provision for unearned premiums. The data depicts the difference between the initial and the closing state of the reporting period in the field of provisions for unearned premiums and provision for unexpired risks on the reinsurers share in direct insurance and inward reinsurance. This position shows the change in the provision included in the balance sheet liabilities (position D.I.). The Figure shows that the reinsurers' share has risen from the 16.88% in 2017 to almost 30% in 2018. It indicates that the unexpired risk of the insurers active in the second insurance sector in 2018 has most probably risen in comparison to 2017 and as a result the reinsurers' share in the risks has risen as well.

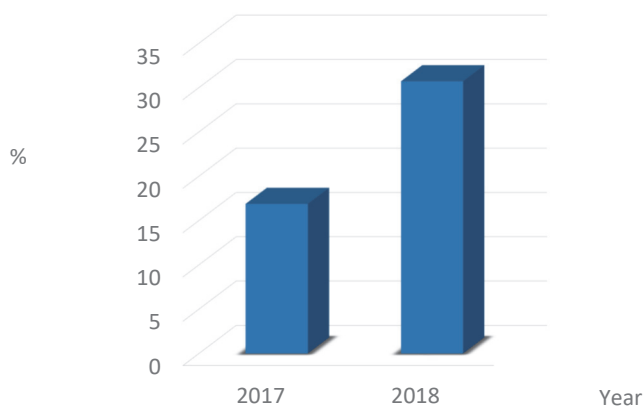


Figure 4. Reinsurers' share in the change in provisions for unearned premiums in total in the second sector over the period of 2017–2018

Source: Author's own elaboration based on: KNF, 2019; PIU, 2019.

#### 4. The level of reinsurance in groups 3, 10, 14–16 of the second insurance sector over the period 2017–2018

The third insurance group concerns casco insurance for land vehicles with the exception of rail vehicles covering the damages in motor-cars and non-self-propelled land vehicles. Casco insurance is in most cases connected with cars (then it is called motor own damage insurance or autocasco—AC) and it is a facultative motor insurance, which can cover the car, its both standard and additional accessories, theft insurance, damage or destruction insurance. The most common autocasco insurance covers damages arising from accidents, collisions with other vehicles, people, animals or other extravehicular objects, third party damage or breakage, theft or attempted robbery of the vehicle, its parts or its additional accessories, fire, explosion, situation involving atmospheric phenomena, e.g. floods, sinking, hurricanes, hail, lightning, landslides, avalanches. Insurance group number 10 concerns liability insurance of all types, possession and use of land self-propelled vehicles insurance together with the carrier's insurance. High burden of claims of motor third party liability insurance influences the fact that all this insurance portfolio is mostly reinsured by the obligatory non-proportional "excess of loss" insurance contract or by the obligatory proportional "quota" insurance con-

tract (PTR, 2019). The first type of reinsurance means that the insurer limits the participation in damages to single risks, or groups of risks, to some certain limits. Once the limits are exceeded, the reinsurer starts to participate in financing the damages. Non-proportional contracts depart from the primary risk as the subject of cession to the reinsurer towards the value of the loss or damage. In case of the “proportional quota reinsurance, the reinsurer participates in all the losses in a given group of risks to some extent and regardless of the sum insured of a given risk. In return, it obtains a share in the initial premium” (Gerathewohl, 1980, p. 68). The value of the primary risk may also be expressed in the PML category so by the probable maximum loss (Kukielka and Poniewierka, 2003, pp. 537–552).

Groups 14–16 are financial insurance. Financial risks are characterized by some specific traits, e.g.:

- the evaluation of the risks focuses on evaluating the future ability of the entity to service the commitments made;
- there is little relevance of the insurance statistics while making a decision about an insurance contract, risk acceptance, giving a guarantee;
- regress in financial insurance is a rule;
- there is a necessity to analyze the combination of risks.

Financial insurance protects the results of the contract concluded between particular entities and the economic performance. Within this group of insurance only the risk of default or inappropriate implementation of the contractual obligations are covered by the insurance. It should be underlined, that only the interest of the party on whose behalf the commitment should be maintained is the subject of protection. As a result, every time there is a regress of an insurance company to the debtor. In case of a credit insurance it is a borrower. In this case the insurance company aims to compensate financial losses which the creditor has as a result of not receiving the claim for the loan in the situations specified in the insurance contract. In turn, in case of the insurance guarantee it is a commitment letter of the insurance company (guarantor) to make the payment of the guaranteed amount to the beneficiary (the entity the guarantee was provided to). Such a payment is possible on demand of the beneficiary and after receiving from him a statement in a situation when the debtor (the applicant for the guarantee) does not follow through the liabilities to the beneficiary. In practice insurance guarantee is used mainly as a collateral for the investor in the investment process just as a result of random events specified in the guarantee contract. Both above-mentioned types of insurance play an important role in the country’s economy, especially in case of increasing market competition. As a result, there is a growth in the number of different economic risks and in turn risks connected with giving loans and insurance guarantees to companies (Grzebieniak, 2019). Mainly because of those reasons the reinsurers’ share in gross written premium appears in groups 14, 15 and 16 which is shown in Figure 5.

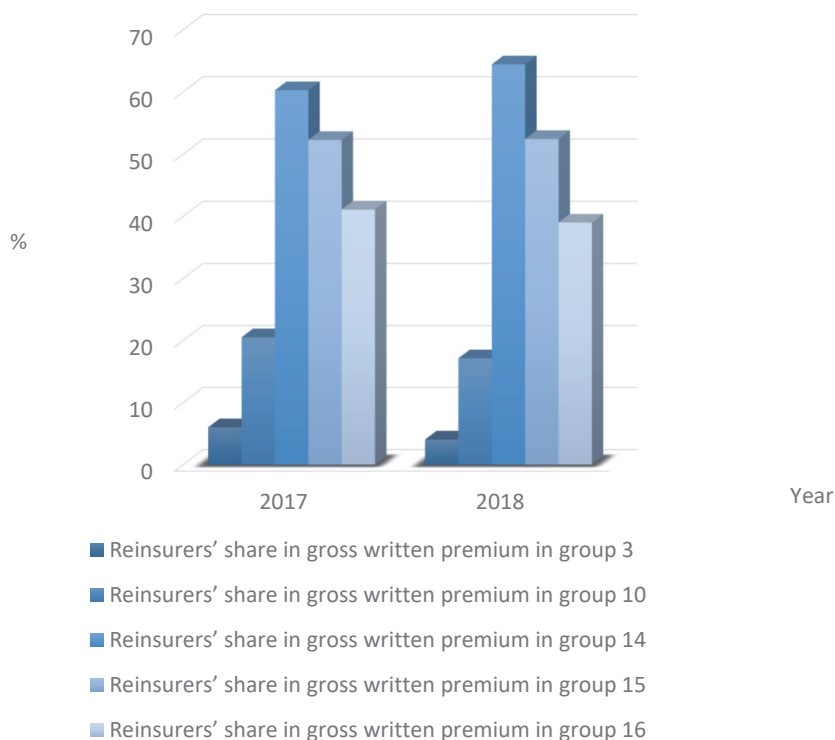


Figure 5. Reinsurers' share in gross written premium in particular groups of the second insurance sector over the period of 2017–2018

Source: Author's own elaboration based on: KNF, 2019; PIU, 2019.

In groups 14 and 15 there has been a growth in the reinsurance level in the analyzed period. In group 16 there has been a minor fall. In groups 3 and 10 those shares are considerably lower, although in reinsurance of motor third party liability insurance (group 10) they are over three times higher than in reinsurance of motor own damage insurance (group 3). It is the effect of the high burden of claims of motor third party liability insurance (OC), which often brings loss to the insurers unlike motor own damage insurance (AC), which is profitable.

In gross payments on claims (Figure 6), in insurance group number 3 the reinsurance index ratio was as high as slightly over 5% in 2017. In 2018 there was a minor fall and the index amounted about 4.85%.

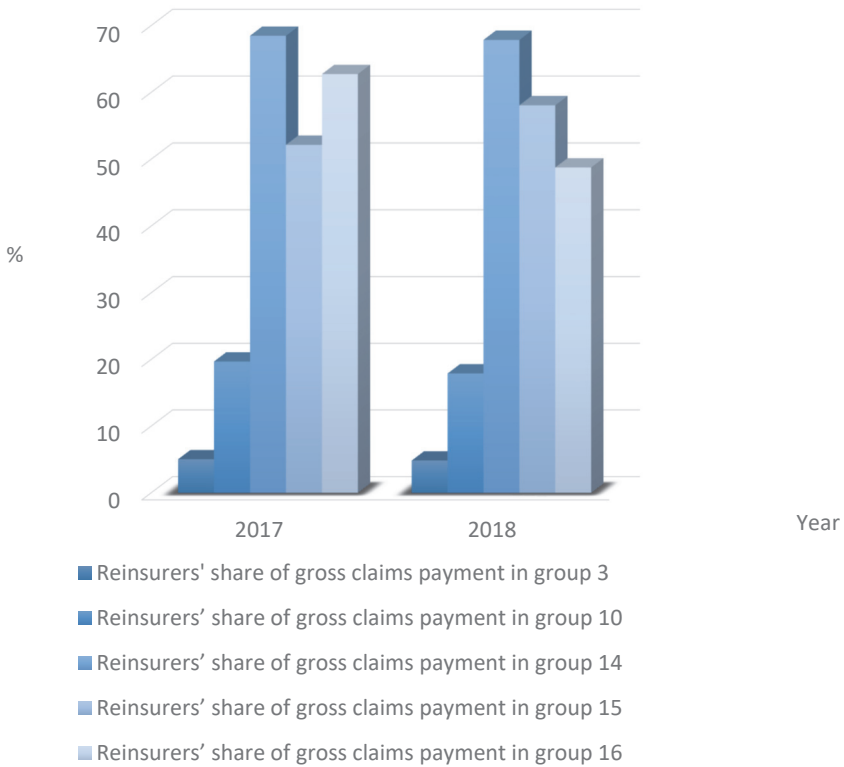


Figure 6. Reinsurers' share of gross claims payment in particular groups of the second sector over the period of 2017–2018

Source: Author's own elaboration based on: KNF, 2019; PIU, 2019.

The situation was similar in the reassured group number 10, although the level of claims was much higher, namely 19.71% in 2017 and 17.91% in 2018. While talking about financial insurance—groups 14 and 16—it can be noticed that the reinsurers' share in claims has fallen unlike in group 15—insurance guarantee—where an increase was visible. The conducted research (Grzebieniak, 2009b, pp. 61–68) shows that the proportional surplus reinsurance is the most frequently used insurance type in this insurance group. In this type of reinsurance part of the original policy is ceded to the reinsurer only when the insured amounts of money exceed a certain value called net retention. In the analyzed period there was a growth in both the number of insurance guarantee policies which exceeded the net retention (Figure 5) and in the level of reinsurers' engagement in paying claims (Figure 6).

Another indicator which helps to evaluate the level of reinsurance is reinsurers' profit commission in reinsurance and reinsurers' profit share (Figure 7).

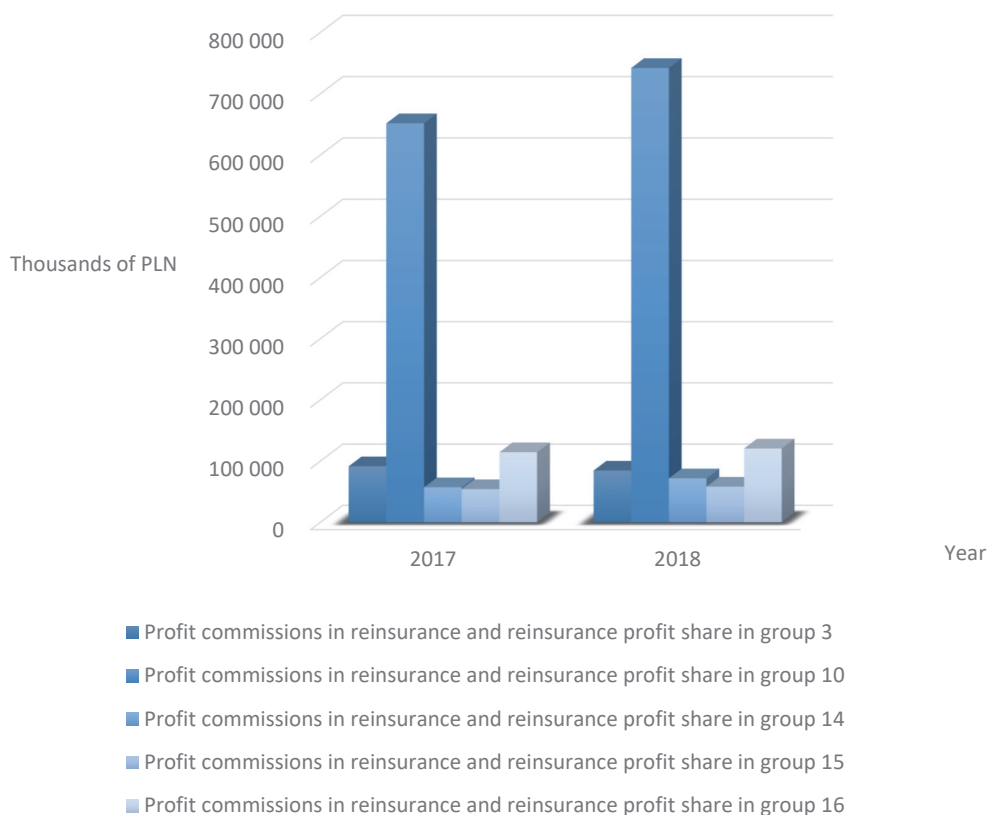


Figure 7. Profit commissions in reinsurance and reinsurance profit share in particular groups of the second insurance sector over the period of 2017–2018

S o u r c e: Author's own elaboration based on: KNF, 2019; PIU, 2019.

Profit commission in reinsurance appears mainly in proportional contracts and its value depends mainly on the assignors' negotiating position. The higher the acquisition costs or the market requirements concerning appropriate damage services, the higher the commission. Insurers treat reinsurers' commissions and profit sharing as a compensation for the costs incurred in connection with obtaining the insurance risks. Profit commissions in reinsurance are strictly connected with the difference between the initial premium which the insurer (assignor) gets because of the insurance services he provides and the part of the premium passed to the reinsurer as a price for the secondary risk transfer. In this way, the reinsurer participates in the cost of obtaining the risk by the insurer. Moreover, reinsurers distribute the shares in the profits they get from reinsuring those risks. It should be pointed out that reinsurers distribute the profits even if they do not make any profits in a given risk group in a particular year. In such situation they take into consideration the profits they make on the cooperation with a particular insurance company over the period of several years. In this way they give an insurance company some kind of an additional reward and encourage the company to

continue the cooperation. It is of crucial importance especially in a situation when insurance companies incur losses on their insurance activity (technical) in a given group of risks. Figure 7 shows that profit commissions in reinsurance and *reinsurance profit share* in group 3 estimated about 91 million PLN and were slightly lower in 2018. In group 10, however, both commissions and shares were an upward trend and in 2018 they were almost 100 million PLN higher and amounted about 742 million PLN. In financial insurance both the level of commissions and shares rose, however it was most clearly visible in group 15. It means that credit insurance had good balance of the technical account.

Another indicator, namely reinsurers' share in change of provision for the unearned premiums in the analyzed groups applies to reinsurers' share in the provisions for unexpired risks in the given insurance groups. This is the amount of money which the insurance company puts aside together with the unpaid premiums in relation to the risk the insurance company takes after the end of the financial year. This action is performed in order to secure all the claims and expenses connected with the insurance contracts in force which are higher than the value of the premiums which were not received and all owing contributions indicated in the contract. The data which illustrates the above-mentioned indicator is presented in Figure 8.

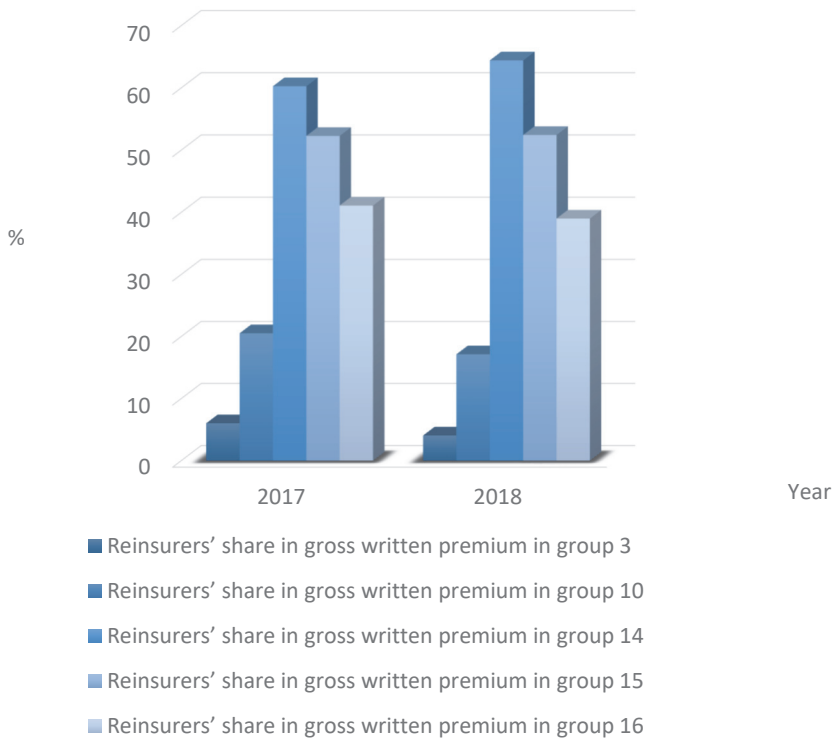


Figure 8. Reinsurers' share in change of provision for unearned premiums for unexpired risks in particular groups of the second insurance sector over the period 2017–2018

Source: Author's own elaboration based on: KNF, 2019; PIU, 2019.

Figure 8 shows that the most visible change of provisions for unearned premiums appeared in group 16 (different financial risks insurance) although generally speaking it considerably fell in 2018 and reached the level of 37.68% whereas in 2017 it amounted 122.21%. During the same time the change in provisions for unearned premiums in group 14 has fallen by almost 80% and in group 15 by almost 18%. The change is even more visible in motor insurance—it is four times higher in group 3 and three times higher in group number 10.

## 5. Conclusion

The aim of this article was to evaluate the level of reinsurance used by national insurance companies in the second sector and in its chosen groups over the period 2017–2018.

The conducted research indicates that the reinsurers' share in gross written premium in the second insurance sector increased slightly in 2018 in comparison to 2017 (from 11.57% to 11.64%) and the reinsurers' share in claims has fallen from 9.52% to 8.4%. Such figures are on the one hand the indicative of the insurers' care of the economic performance of their activity and on the other hand they indicate good results in this activity and consequently decreasing reinsurers' share in compensations. In case of the selected groups from the second sector the situation looks slightly different. From all the motor insurance, namely motor third party liability (OC) and motor own damage insurance (AC), motor third party liability has the highest reinsurance level. It results from strong competition on the motor insurance market and the pressure to lower the prices, which leads not only to their low profitability but often even to loss in this group of insurance and as a consequence to seeking savings by the insurance companies. As a result, offering motor third party liability insurance is connected with special risk management. One of the solutions is using reinsurance to a greater extent which provides the opportunity to introduce a higher treaty premium with the unchanged value of the own funds and the amount of solvency margins.

In years 2017 and 2018 the level of reinsurance was about 20% (both in the reinsurers' share in gross premium and in their claims and gross payments)—so the amount was similar to the one in 2013–2016 (according to the research conducted in 2017) (Grzebieniak, 2018). It means that insurers still use reinsurance in risk management connected with motor third party liability on a large scale. This trend has been noticeable since 2009 and in 2017 the premium assignment rate increased three-fold (and it doubled in all property insurance) (Domański et al., 2018). The engagement of reinsurers in motor own damage insurance (AC) is much lower and amounts about 6%, just like in years 2013–2016, which is understandable as this insurance group has been profitable for many years. It should be stated that also in this insurance group there is a continuing trend of ceding premiums as in 2009 it was about 2%, in 2017—6% and in 2018 it reached 6.03%.

In case of financial insurance there is almost twice as high level of reinsurance in comparison to the motor third party liability. The highest level was observed in group 14 (credit insurance), in group 15 (insurance guarantee) and in group 16 (different financial risks insurance). However, when taking into consideration the reinsurers' share in gross claims payment in 2017, in group 16 the reinsurance level was higher than in group 15. It does not change the general tendency that this insurance group is relatively higher reinsured by the insurers

(a similar level appeared in years 2010–2014). This results from the level of risks they concern, for example trade credit, export credit, agricultural credit, insurance guarantee, different financial risks (among others weather risks or the risks connected with the economic performance of companies and their operating procedures). The probability of occurrence of those risks changes together with the weather changes or the economic situation. The event occurrence statistics in such types of risks does not play such a big role as in other types of insurance so it is really difficult to estimate the effects of insuring those risks.

The research concerning the reinsurers' commission and reinsurers' profit share in the second insurance sector shows that in 2018 there was a growth in both those sections of about 10%. The same research shows that the reinsurers' share in change of the provision in the same sector has risen by about 20% in 2018 in comparison to the data from 2017. In the first case it means the positive balance on reinsurers' account on reinsurance activities of the ceded risks when talking about all the insurance companies from the second sector. In the second case the insurers' unexpired risks working in the second sector have most probably risen in comparison with 2017. When taking into consideration some chosen groups from the second sector the situation seems to be much more diversified. The reinsurers commissions and reinsurers' shares and their commission rose in 2018 in comparison to 2017. The third group was an exception as they were slightly lower there. However, the reinsurers' share in the change of the provisions for premiums in groups 3 and 10 has increased by several times whereas it has fallen in groups 14 to 16. It is difficult to indicate the exact cause of this state as such detailed data is confidential and it is not published. The increase of the so-called unexpired risks may be connected with the premiums which were paid after the deadlines established in the insurance contracts, which were still in power after the insurance companies accounting period. Another reason may be the pending entitled lawsuits arising from the insurance connected with the insurance companies' insufficient payments after the past indemnifiable accidents.

The level of reinsurance used by national insurance companies in the second insurance sector in its chosen groups does not significantly deviate from the insurance level used in the analyzed sectors in the previous years. The research conducted over the period 2007–2016 (Grzebieniak, 2019) shows that the only time when this level was slightly higher was the period of global economic crisis on financial and banking markets (2009–2013) which started with the decline on the subprime mortgage loans market in the United States. Polish markets were also highly influenced by the crisis which was especially visible in the economic development slowdown. Moreover, year 2010 in Poland was the time of catastrophic floods, which had quite bothersome effects on the insurance companies. The number of the reported damages at that time estimated about 270 000 and the total value of the damage financed by the insurers and the reinsurers was 1.7 billion PLN (Grzebieniak, 2015). It turned out that insurance system participates financially in compensation for damages only by about 14%. The rest, namely 86% of the damages, was covered from the state budget or from the local governments' budgets. It shows that natural and legal persons in Poland still rarely use insurance against the occurrence of injury.

The analysis of the selected indicators of the reinsurance market shows that the reinsurance level used by the national insurance companies in the second sector over the period 2017–2018 is governed by the basic principles of responsibility for the financial situation of the in-



insurance companies. More accurate assessment of this activity requires detailed data about the pursued reinsurance policy of the insurance companies and such data is often confidential. The adoption of the level of cash for compensation payments ratio is extremely important, no matter if it is a single financial unit or the aggregated value which will not disrupt the insurance companies' financial situation. The comparison of the potential threats and the financial resources helps to specify the demand for reinsurance. The first step is to determine the basic parameters referring to the premium, so the amount which can be safely placed on their own account. The next step is to determine the value of the single maximum risk, which may be independently compensated. Next, both determined values are confronted with reality and the reinsurance market requirements, which is in the end reflected in the specific conditions of the reinsurance programme.

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## Reasekuracja towarzystw ubezpieczeniowych w wybranych grupach drugiego sektora na polskim rynku w okresie 2017–2018

**Abstrakt:** Celem artykułu jest ocena poziomu reasekuracji stosowanej przez polskie zakłady ubezpieczeń w dziale drugim ubezpieczeń oraz w jego wybranych grupach w latach 2017–2018. Z przeprowadzonych analiz wynika, że w latach 2017–2018 utrzymuje się zapoczątkowany w roku 2009 stały trend wzrostu cesji składek do reasekuratorów zarówno w całych ubezpieczeniach majątkowych (dział II ubezpieczeń), jak i w jego wybranych grupach, na przykład w ubezpieczeniach OC i autocasco pojazdów lądowych. Poziom składek w dziale drugim wzrósł dwukrotnie, a w OC i autocasco – trzykrotnie. Jest to wynik z jednej strony zwiększonych wymagań kapitałowych wynikających z Solvency II i dotyczących wymogów kapitałowych

wobec zakładów ubezpieczeń przy większej koncentracji ryzyka, z drugiej zaś – zwiększonej niepewności co do przyszłych wypłat w szkodach OC pojazdów lądowych. W przypadku ubezpieczeń finansowych wzrost cesji składek nie był tak dynamiczny w ostatnich latach jak składek OC i autocasco, niemniej jednak wzrósł średnio dwukrotnie, czyli w tempie wzrostu cesji składek do reasekuratorów całego rynku ubezpieczeniowego. Najwyższy poziom cesji składek wystąpił w grupie 14 i kształtował się na poziomie około 65%. Odsetek ten był znacznie niższy w grupach 15 i 16 i wyniósł odpowiednio 52% i 40%. Trend wzrostu cesji składek do reasekuratora w tych grupach ubezpieczeń utrzymuje się od 2010 roku.

**Słowa kluczowe:** reasekuracja, ubezpieczenia komunikacyjne, ubezpieczenia finansowe

# Innovative and investment safety of finance in Ukraine as factor of its financial system balancing

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**Abstract:** The authors consider features and threats to innovations and investment safety of finance in Ukraine as a balance factor of its financial system. They study the influence of innovative and investment components of safety of finance at the level of the state financial system balancing as one of the indicators of financial safety in Ukraine. The authors have come to a conclusion that it is necessary to modify state influence on innovations and investment activity in order to strengthen financial safety in Ukraine. Simplification and organization of state administration, creating conditions for self-regulation in the market of innovation and investment components of financial safety are absolutely necessary to solve problems connected with creating a favourable climate for investment in Ukraine, to achieve the balance of its financial system and, also, to maintain financial safety in Ukraine at an appropriate level. For the research the analysis of the dynamics was used where the sizes and directions of development of the studied phenomena were presented, i.e., to find the degree of increase or decrease in time of a studied phenomenon. In this regard statistical time series was applied. Research shows, when the volume of direct foreign investments increased, the negative unbalance of state financial system constantly deepened from 2003 to 2012, while recently, the balance level has stabilized. It can be the consequence of reduction of receivables of direct foreign investments and reduction of financing of innovative activity, which is proven by the authors' research.

**Keywords:** innovations, investment, safety of finance, financial system, financial stability

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## 1. Introduction

The problem of the safety of finance in Ukraine determines the condition of the security of the state and its finance against the impact of multifactorial threats. They are also conditioned by insufficiency and imbalance of financial resources (Paentko and Poplavska, 2011). It is expedient to examine the safety of finance not only from position of achievement of certain condition of the financial system that is good according to number of criteria, but also from position of the process of achieving and maintaining the necessary state of financial system at the appropriate level (Jenkinson, Penalver and Vause, 2008; Mullineux, 2010; Altınçubuk, 2019).

In scientific economic literature there are similar approaches that envisage the selection of financial safety of investment, innovation, banking, currency, money-and-credit, budget, fund and insurance sectors. It is expedient to consider the safety of finance as an extraordinarily difficult multilevel system which is formed by a number of subsystems, each of which with its own structure and logic of development (Skvortzova, 2008).

In modern conditions of development and functioning of enterprises, the main resource is knowledge and information which are intellectual technologies that help to solve an issue of limited natural sources. That is why evaluation of innovative activity of an enterprise plays a leading role in the characteristic of its operating. Additionally, development of mechanisms to stimulate innovative activity of economic entities remains the relevant subject of researches and discussions in domestic economic thinking and practice (Resler et al., 2019). Modern economic practice demonstrates that enterprises can achieve high results only with systematic and purposeful innovation aimed at finding opportunities that economic environment may give regarding production and introduction of new types of goods, new industry and transport means, development of new markets and forms of organization of production (Przybytniowski, 2016). This implies especial innovative style of management, in the basis of which is focus on innovations, systematic and purposeful activity. Competitive advantages are being achieved thanks to introduction of innovations—totally new methods and techniques of industry and commercial activity. The search for new idea is the respond of business entities to reduced income of their activities conditioned by certain market sector glut of certain goods. The possibility to create and use innovations by economic entities depends on the general level of scientific and technological progress of a country and resources (Lochan et al., 2015). That is why evaluation of innovative policy of an enterprise plays a leading role in the characteristic of its operating, determination of efficiency indicators of enterprises and development of the mechanism to stimulate its innovative activity (Ackoff, 1978; Bazhal, 2015). However, in general problematics of implementation of the model of innovative business development, it is still relevant to develop interconnected indicators of analysis of innovative activity of an enterprise, as well as to study main factors of stimulation of innovation and investment activity of business entities, which determines the relevance and choice of research focus (Silagadze, 2019).

The safety of finance in Ukraine is characterized by dynamic development of its financial system. It is achieved by applying a reasonable financial policy in accordance with the accepted concepts, strategies and programmes in the sphere of investment and innovation. Works of domestic and foreign scientists: Shevchenko, Senchagov and Shlemko (2009); Sirén, Kohtamäki

and Kuckertz (2012); Birkinshaw et al., (2014) and others are devoted to studying problems of financial safety. However, the problems of innovative and investment safety of finance in Ukraine in context of its financial system balancing still remain insufficiently considered because of its ambiguity and the system of close interconnections. The analysis of existing scientific works offers an opportunity to study these problems in the conditions of the long financial and economic crisis in Ukraine and requires a thorough analysis and an adequate estimation.

The research aim is to consider the features and threats of innovative and investment safety of finance in Ukraine and, also, to study the influence of the above-mentioned components of safety of finance at the balancing level of the state financial system as one of the indicators of the safety of finance in Ukraine.

## **2. The impact of innovative component on the safety of finance in Ukraine**

It is expedient to take into account that most of current financial problems in Ukraine are encountered for the first time, as the national financial system is being formed together with the economic transformation and modification of the system of state administration. Ukraine, in the process of passing to open economy, has got under the influence of some powerful external economic factors, which additionally influence the safety of its finance.

Components of financial safety (including innovative and investment components) hold an important position among numerous constituents of economic security of Ukraine. By applying regulatory measures, Ukraine influences innovative and investment components of financial safety with the aim to effectively recreate its economy and provide desirable economic growth. Despite the attention given by foreign scientists to various aspects of the innovative component of financial safety, all of them require further research. Innovations research has become more relevant and continues to grow in Ukraine because the innovative model of economic development has been proclaimed as the strategic course for the state which is based on preparing, introducing and implementing this new knowledge.

Innovations which are constantly developing, are characterized by the presence of a wide spectrum of definitions. There are authors who consider an innovation as exclusively practical realization of innovations, others indicate that it is a full cycle: from the occurrence of an idea to its commercial development; and some consider it “entirely new”: each idea, activity or material outcome, considerably differs from the existing forms (Larson, 2017).

According to the Law of Ukraine “on innovative activity”, an innovation means newly created and/ or advanced competitive technology, production or service, and also organizational and technical decisions of industrial, administrative, commercial or other character which essentially improve the structure and quality of production and/ or the social sphere (Resler et al., 2019).

The static approach to the definition of innovation prevails among researchers. But Joseph A. Schumpeter (1934), founder of the innovative theory, considers innovations as dynamic. In his research he wrote about “the introduction of a new method” instead of a new method, “the development of a new market” instead of directly about the market, “carrying out of the reorganization” instead of the reorganization.

There are, also, researchers who do not deny that innovation is a complex process which unites science, technology, economy, business and management. Therefore, according to Olga Zvyagintseva, “the innovation extends onto a new product (service), a way of its manufacture and realization, any innovation in organizational, financial and research spheres and any improvement which provides economy with expenditure or creates conditions for such economy” (Zvyagintseva and Zabarna, 2013).

Authors offer the following definition: innovation is a complex process which consists of creation, preparation, reduction to commercial use and distribution of the new organizational, technical, marketing, logistical or any other innovative decision satisfying certain requirement and leading to qualitative changes in manufacture and advancement of production (Aguinis and Edwards, 2014).

At present, researchers view innovations as qualitative changes in any field of activity (Przybytniowski, 2016). Grouping innovations into different signs should not only concretize the object structure but also find connections between different types of innovations in it. Problem character of such parities is the main reason for the appearance of new systematizations.

Novelty level is one of the most important criteria of classification of innovations because it defines their competitiveness and consumer demand.

It is possible to talk about real novelty only during a certain period of time when the novelty involved is not under technical and economic ageing yet. Therefore, the concept of novelty should be considered in several aspects: scientific and technical novelty, industrial or consumer novelty, etc.

According to the criterion of introduction in production, all innovations can be divided into technological and non-technological ones. Thus, researchers have always paid the greatest attention to technological innovations. Whereas, innovations in services of the basic operational processes are not technological (Gruber et al., 2010; Przybytniowski, 2018; Wilden et al., 2019). They consist of innovations in legal, social, administrative, organizational, marketing and ecological aspects.

### **3. An investment impact factor on the safety of finance in Ukraine**

High attention to investment component of financial safety is predetermined by the fact that investment is the basis of materialization of financial safety. Therefore, it is necessary to activate investment processes in order to provide extended recreation, creation of potential positive changes in the conditions of intensifying socio-economic contradictions, threats of self-development and independence of the state (Shevchenko [ed.], 2009; Ajayi and Morton, 2013).

The importance of support for the investment component of appropriate financial safety is determined by the necessity to observe national interests in a given sphere. Among such interests in the field of investment safety, we can mention (Shevchenko [ed.], 2009) long-term ones: forming investment and, then, an innovative model of development, providing structural changes in economy; forming favourable investment climate; mid-term ones: forwarding the capital flow (taking into account the reasons and trends of its international mobility) to the hi-tech sectors of economy, combining investments with innovations, accelerating modernization

of industry with modern technologies, providing the quality structure of foreign investments, market funding, as well as institutions of investment development; short-term ones: avoiding the destruction of the banking system, minimizing losses incurred due to the world financial crisis, providing liquidity of enterprises and banks, avoiding substantial dependence on foreign capital through large external debt and taking additional international loans, inhibiting investing to GDP, maintaining innovation-oriented investments (Przybytniowski, 2016).

Among directions of research of investment component of financial safety, it is necessary to mention:

- 1) exposure to criteria, measures, instruments and procedures of its provision;
- 2) determination of the role of the state at various levels of management in the process of supporting the investment constituent at a due level;
- 3) exposure of the system of interrelations and interferences of investment constituent, including other constituents of financial safety (in particular, innovation);
- 4) determination of priorities of increasing and forecasting the power of the investment component of financial safety.

So far a reasonable interpretation of the essence of investment component of financial safety has been missing. Therefore, M. M. Ohrimovich notices that most scientists examine the investment constituent of financial safety as an auxiliary instrument (structural element) of financial safety provision; however, it is necessary to note that such an interpretation is superficially concentrated on the possibilities of investment resources to realize economic security of the state and specifies improper estimation of the investment component (Ohrimovich, 2015). Basic descriptions of innovative and investment safety of finance in Ukraine and the main threats related to its functioning are grouped in Table 1.

Table 1. Basic descriptions and threats of innovative and investment safety of finance in Ukraine

Component	Description	Threats
Innovative safety	<ul style="list-style-type: none"> <li>– a source of permanent process of creation, use and distribution of new knowledge and technologies of the state on the basis of the combination of its scientific and technological potential and innovative transformations</li> <li>– possibilities of cross-border (on separate terms international) co-operation that creates pre-conditions of permanent functioning and development of the economic system</li> <li>– a condition of innovative activity of the state using its own intellectual and technological resources</li> <li>– an instrument generating scientific ideas by introducing and perceiving innovations and providing the necessary amount of quality to be converted into state economic development</li> </ul>	<ul style="list-style-type: none"> <li>– a low level of innovation and investment activity in entity management</li> <li>– technological lag of the Ukrainian economy compared to developed countries</li> <li>– inefficiency of public policy in stimulating innovative activity</li> <li>– a low level of competitiveness of domestic products</li> <li>– absence of the hi-tech market</li> <li>– improper protection of investors and intellectual property</li> <li>– a low level of financial encouragement offered to scientists and innovators</li> <li>– an outflow of scientific staff to foreign countries</li> </ul>

Investment safety	<ul style="list-style-type: none"> <li>– a possibility to accumulate, attract and effectively use investment resources for the development of economy</li> <li>– a resource factor to recreate scientific and technical, innovative and intellectual potential of the state</li> <li>– a factor of permanent increase of GDP and socio-economic development</li> <li>– a factor to overcome depression and crisis phenomena in the state, etc.</li> </ul>	<ul style="list-style-type: none"> <li>– chronic underfinancing of real sector of economy</li> <li>– absence of an effective system of measures that stimulate transformation of additional return into investment for citizens and economic entities</li> <li>– absence of priority of budgetary charges on the investment resources of the regions</li> <li>– an unfavourable investment climate</li> <li>– absence of the dedicated modes of investing with the simultaneous strengthening of control following their development</li> </ul>
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S o u r c e: Authors' own elaboration, based on Vykluk, 2012.

Investment and innovative policy and strategy of financial safety in Ukraine are closely interrelated. Negative dynamics of indexes of innovative and investment components is reflected by the indexes of safety of finance and creates the threat of imbalance to the whole financial system.

#### 4. Methodology and results

In order to calculate the studied phenomena, the authors applied the analysis of the dynamics where, on the basis of calculations, the size and direction of the development of tourism in Ukraine will be presented, as well as features and threats to innovation and investment safety as a factor of balance of the financial system. Below the authors shall present the impact of innovation and investment factors of financial safety at the level of balancing the financial system of the state, as one of the indicators of financial safety in Ukraine. Consequently, the degree of increase or decrease of the studied phenomenon shall be established in time. In that regard, the authors used the statistical time series.

In this context the authors consider it advisable to trace the interrelation and interference of various investment and innovative processes and the level of balance of the state financial system, taking into account their evident influence on the safety of finance.

Figure 1 schematically presents the concept of balancing (correlation of relative volumes of positive and negative impact factors on balancing condition).



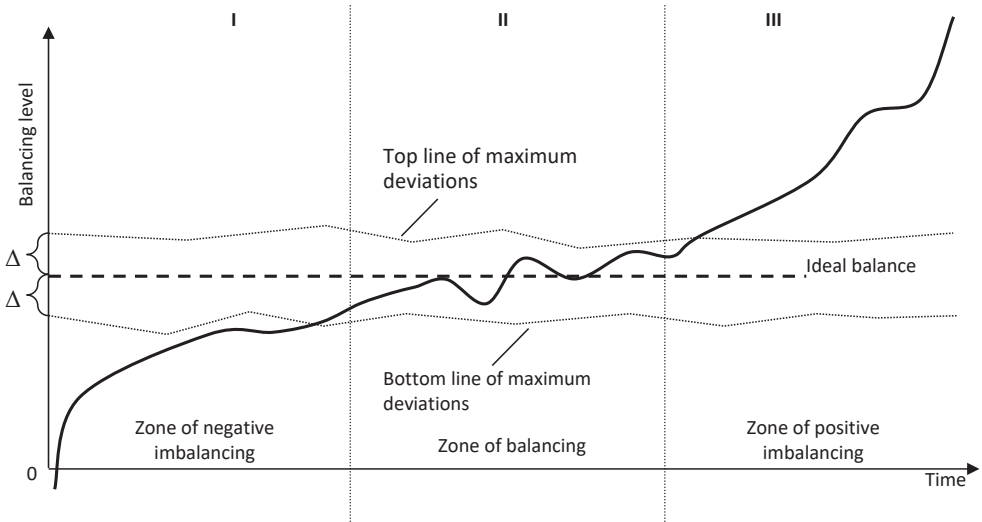


Figure 1. Dynamics of balancing level as result of positive and negative impact factors

Source: Shubin (ed.), 2014.

It describes the dynamics of balancing in the course of time. In order to show it more clearly, the investigated time span is broken into three periods: negative imbalance, long-term balance and positive imbalance. There are lines of ideal balance and lines of maximum deviations in the picture. By means of the top and bottom lines of maximum deviations, we can talk about balancing or imbalanceing.

A line in the zone of negative disbalancing (through the predominance of negative factors of influence) is below the line of ideal balance. But in the zone of positive disbalancing, the line is higher than the line of ideal balance through the predominance of positive factors of influence. The zone of balancing is characterized by the line being in the possible lines of disbalancing. It is necessary to indicate that the above-mentioned lines of disbalancing are within the mathematical category of calculating error due to rounding, predictable inauthenticity of data because some factors which are ignored may actually have substantial influence on the possible value of the balancing level. Thus, the lines described above can deviate from a certain mid-level in time, which helps to get more accurate results of current and long-term levels of balancing, and better investigate the dynamics of balancing level and, also, allows forecasting future variation of the balancing level. Even the size of ideal balancing in this case cannot remain permanent and have the appearance of a horizontal line. Hence, balancing is not a certain size, an ideal to aim at, but a mid-value of indexes of the size of positive and negative factors.

Predominance of those or other factors influences the presence or absence of balancing. Only if the positive and negative factors are simultaneously within the possible borders of disbalancing, is it possible to establish the equilibrium. Insignificant deviation of positive or negative factors from possible borders, if other indexes are within these borders at certain

times, can also mean the presence of balancing of the state financial system; however, such instances require additional detailed consideration.

It is necessary to note that there is another direct opposite of the concept of “balance”, or “unbalance”, which more visually confirms the necessity of adequate measures for system reduction in a balance condition. Unbalance, as something imperfect, has existed since the beginning of the society. Even if negative trends are constantly traced in an ideally balanced environment, any (at first sight insignificant) impact factor can essentially infringe the condition of balance and will lead to the unbalance. Certainly, it is possible to state that balancing of environment is superfluous, unnecessary—in the long run, the impact of positive and negative factors will be counterbalanced, and time unbalance, from which we cannot completely be protected, will prevent nobody, and will, additionally, stimulate the development of a specific territory. But it does not happen. Self-balancing is possible only at minimum (or zero) state influence on the financial processes. It is basically impossible because of the existence of external influence and the necessity to fulfil state functions. To some extent, self-balancing occurs in the long-term period, but the time necessary for a complete equilibration of system, without additional actions, is extremely difficult to measure, unless almost impossible. And, consequently, such expectation of “the best times” may be considered groundless (Gerasymenko, 2012a).

Ideal balance (as well as the absolute unbalance) is practically impossible to achieve. Therefore, it is necessary to speak not about balance achievement, but about a maximum level of balance (Garasyim, Gerasymenko, Garasym, 2015).

It is necessary to pay attention to relative inexpediency and low efficiency of balancing in the conditions of the country economic development being formed. Balancing should be inherent in the countries at the certain development level, with established economic, political and social relations in the society and used in order to minimize their possible fluctuations and, also, to promptly return to an equilibrium condition (Gerasymenko, 2016).

A phrase: “the country is in an equilibrium condition”, unfortunately, speaks nothing of the development level of a country (or about “balancing level”—a comparative indicator by means of which the degree of investigated territory balancing at present or in time is measured). It is clear that even in the African settlement, where all the existing relations of a given company can be accurately established, the system is considered balanced (or close to balanced) although it is natural that the level of development of a similar territory leaves much to be desired.

Such a situation can be in a highly developed modern state which, skilfully using all existing regulation levers, gradually leaves the level of development, considerably not infringing an equilibrium condition. In this case, looking “from the outside” (that is, having only statistical data and knowing nothing about the specific country), the investigated state was in long-term balance, and it is impossible to speak about the increase (or decrease) in its economic development by means of this method.

As for Ukraine, in particular, it is necessary to notice that at this stage it reacts sensitively enough to any impact factors (especially external ones). Therefore, it is extremely difficult to predict any processes with high accuracy and in the long-term in such situation. Forecasting seems possible only for a short time (Sytnyk and Gerasymenko, 2018).

The purpose of Figure 2 is to illustrate the above assertions. It displays dependence between the indicators of Ukraine financial system balancing and the volumes of innovative and investment incomes in it.

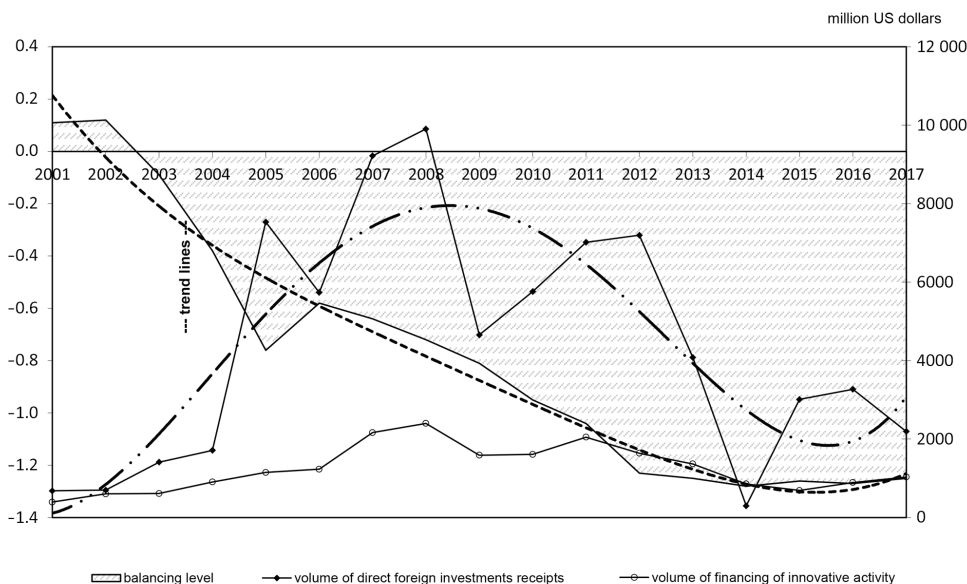


Figure 2. Comparative dynamics of balance value of Ukrainian financial system and volumes of innovative and investment incomes

Source: Authors' own elaboration, based on Shevchenko (ed.), 2009.

In Figure 2 we can see the following dependence: when the volume of direct foreign investments increased, the negative unbalance of state financial system constantly deepened from 2003 to 2012. Whereas recently, the balance level has stabilized. It can be the consequence of reduction of receivables of direct foreign investments and reduction of financing of innovative activity, which is proven by the authors' previous research (Gerasymenko, 2012a; 2012b).

Thus, similar stabilization is expedient to study in more details and not perceive it only positively. The authors consider that a similar tendency results from irrational use of investments, therefore, the financial system feels an increasing need for effective methods of rebalance. With the help of reasonable influence on volumes and directions of use of direct foreign investments, it will be possible to receive desirable result for a short time in the form of updating of Ukraine financial system equilibrium. In the future it may be possible to talk about applying the corresponding maintenance mechanisms of the state economic firmness when the equilibrium is achieved.

We cannot fail to ignore different opinions of scientists about the role of foreign investing, either. Hence, Podvysotskyj indicates that the receipt of direct foreign investments, at least on certain terms, has substantial positive influence on economic development—additional capi-

tal investments, receivables of the latest technologies, foreign currency, which is especially evident in the conditions of crisis (Podvysotskyj, 2009). Berezhna (2011) and Arzubiaga, Maseda and Iturralde (2018) draw attention to the role and value of foreign investments in the conditions of global world integration.

The important constituent of investment activity is providing favourable investment climate. A socio-economic dynamics, efficient division of labour in the world and, thus, upgradability of national economy, depend on the appropriate investment climate. Financial safety of the state depends on how favourable investment climate is, or the political, legal, economic and social conditions which facilitate investment activity of domestic and foreign investors (Terje and Genserik, 2013).

An investment climate is an internal atmosphere that is formed on a specific territory, taking into account the priority of bringing in additional financial resources. It objectively influences the investor's position in relation to decisions made about investing for entities of a territory. Today an investment climate is negative, which is confirmed by basic international indexes at which investors are oriented. A part of direct foreign investments is generally declining and the threat of the outflow of capital abroad and difficulty in bringing in additional foreign investments to Ukraine can result in disbalance of the financial system and creation of additional threats to financial safety of the country. For this reason, efforts of the state must be made to effectively counteract internal and external threats to financial safety in an investment sphere.

The process of forming investment projects that need state support is not integrated in a general budgetary process. The crisis has considerably narrowed internal sources for investments and international financial resources have become almost inaccessible. In turn, international investors are forced to behave more cautiously to the risks of country. Thus, low investment image of Ukraine makes the state less attractive for international capital (Eling and Wirfs, 2016).

## **5. Conclusion**

The purpose of the article is to consider innovative activity of Ukrainian enterprises. The article has considered the essence of innovative activity; notions of innovative products have been studied; approaches to analysis of innovative activity. This approach is focused on providing efficiency of enterprises' economic activity and increasing innovative activity that is important to achieve strategic goals. Today there are many factors, which impede the qualitative development of such enterprises. That is why the improvement of business and investment climate in Ukraine, stimulation of innovation-intense activity of domestic enterprises should become one of the key priorities of the state to strengthen and integrate national economy.

Therefore, it is necessary to modify state influence on innovative and investment activity with the aim to strengthen the safety of finance in Ukraine. Simplification and organization of state administration, forming conditions for market self-regulation of innovative and investment components of the safety of finance are essential to create a favourable investment climate in Ukraine, to achieve balance of its financial system and support the safety of finance in Ukraine at a required level.

In order to support innovative and investment components of safety of finance in Ukraine at a proper level, it is necessary to:

- 1) modify the structure of Ukrainian economy in order to move to producing hi-tech innovative products;
- 2) create corresponding financial conditions to provide regular investment for innovative projects; form the system of insurance of investment activity;
- 3) provide legislative mechanisms to protect the rights of domestic and foreign investors;
- 4) create economic conditions for investing in modernization and innovative accumulation of initial capital.

Priority areas of innovation activity in Ukraine determine strategically prioritized focuses on innovative activity in the near future:

- 1) new technologies of energy transportation, energy efficient, resource efficient technologies, alternative sources of energy;
- 2) new technologies for the production of materials, their processing and connection, the creation of the industry of nanomaterials and nanotechnologies;
- 3) technological update and development of agribusiness;
- 4) wide usage of technologies of more ecological production and protection of the environment;
- 5) development of modern information, communication technologies, robotics.

Providing proper level of financial safety in Ukraine is possible on condition that there appears a complex approach to determine the reasons of some negative phenomena and their basic components. If negative influences are eliminated, it is possible to define positive processes in the state financial system and the safety of its finance. Without counteracting the threats, it will be too difficult to provide balanced development of the state.

The method of analyzing allowing to assign is just at the context of the further analysis of the rest of the world, on the drive of the utmost understand the concept of innovation of the new spirit:

1. A process aimed at the development and implementation of the results of the final research and development or other scientific and technological advances in a new or improved product realized on the market in a new or improved technological process used in practice, as well as related additional scientific research and development.
2. The activity of the team, aimed at ensuring the advent of scientific and technological ideas, inventions to the result, suitable for their practical application and implementation in the market in order to meet the needs of society in competitive goods and services.
3. Activities related to the transformation of scientific research and development, as well as inventions and discoveries into a new product or a new technological process that is being introduced into the production process.
4. The process of creating a new product from the formation of the idea to the development of production, production, implementation and obtaining commercial effect.

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## Innowacyjne i inwestycyjne bezpieczeństwo finansów na Ukrainie jako czynnik równoważenia systemu finansowego

**Abstrakt:** Autorzy uważają cechy i zagrożenia dla innowacji i bezpieczeństwa inwestycji w finansowaniu na Ukrainie za czynnik równoważący jej system finansowy. Badają oni wpływ innowacyjnych i inwestycyjnych elementów bezpieczeństwa finansów, zachowując stabilność finansową państwa jako jeden ze wskaźników bezpieczeństwa finansowego na Ukrainie. Doszli do wniosku, że konieczna jest modyfikacja wpływu państwa na innowacje i działalność inwestycyjną w celu zwiększenia bezpieczeństwa finansowego na Ukrainie. Uproszczenie i organizacja administracji państwowej, stworzenie warunków do samoregulacji na rynku innowacyjnych i inwestycyjnych elementów bezpieczeństwa finansowego są absolutnie konieczne do rozwiązania problemów związanych z tworzeniem sprzyjającego klimatu dla inwestycji na Ukra-

inie, w celu osiągnięcia równowagi jej systemu finansowego, a także w celu utrzymania bezpieczeństwa finansowego na Ukrainie na odpowiednim poziomie. Do badań wykorzystano analizę dynamiki, w której przedstawiono rozmiary i kierunki rozwoju badanych zjawisk, tj. w celu sprawdzenia dynamiki zmian analizowanego zjawiska. W tym względzie zastosowano statystyczne szeregi czasowe. Badania pokazują, że gdy wzrosła liczba bezpośrednich inwestycji zagranicznych, ujemna nierównowaga państwowego systemu finansowego stale pogłębiała się od 2003 do 2012 roku, natomiast w kolejnych latach poziom równowagi ustabilizował się. Może to być konsekwencją zmniejszenia należności z bezpośrednich inwestycji zagranicznych i ograniczenia finansowania działalności innowacyjnej, o czym świadczą badania autorów.

**Słowa kluczowe:** innowacje, inwestycje, bezpieczeństwo finansów, system finansowy, stabilność systemu finansowego



# Impact of outsourcing on the productivity of Polish industrial enterprises

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**Abstract:** The ever-growing competitive requirements lead companies to introduce new solutions in their business. As a result, industrial companies are increasingly deciding to implement outsourcing. The aim of the article was to examine the impact of outsourcing on increasing the productivity of companies. The survey involved 170 industrial enterprises that are listed on the Warsaw Stock Exchange. The survey covers the period 2010–2018. Conducting the survey makes it possible to state that outsourcing has improved the productivity of Polish industrial companies. Using statistical tests, results were obtained that show that industrial companies are increasingly using solutions provided by external suppliers. The use of outsourcing in enterprises improves both their productivity and has a positive impact on the entire national economy. Outsourcing was measured on the basis of the number of external services, and productivity as an indicator of economic value added (EVA). It should be noted that there is some limitation in the interpretation of the results obtained. External services also include services that are not always outsourced, e.g. banking services. The study contains new information for Poland. It enables scientists to carry out more detailed outsourcing analyses.

**Keywords:** outsourcing, productivity, industrial companies, foreign services, economic value added

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## 1. Introduction

In modern times a lot of firms operate in increasingly difficult conditions. The desire to win a client, a lot of competition and a series of dynamic changes taking place in the environment forces organizations to implement new management methods. More and more business units in Poland make a decision about implementation of outsourcing. In this way, it is becoming a popular management method. The term *outsourcing* is used in economics to indicate the share of external sources in the development of a company that has so far used its internal resources (Aalders, 2001). In other words, it

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is transfer of managerial responsibility to a third party for doing the service specified in the contract (Lysons and Gillinham, 2005).

It is believed that outsourcing as an individual strategy has existed since the industrial revolution and is an indispensable element that affects: cost reduction, work productivity and maintaining competitiveness. In companies where decisions are made in a decentralized way, decisions about outsourcing are made more often (Kavcic, 2014).

There are many forms of outsourcing, hence its adjustment to the type of business does not create a lot of problems. Colloquially, the most important reasons for its implementation are considered strategic motives. It allows the firm to focus on the business activity (Fill and Visser, 2000). Although more and more often departing from the typical understanding of outsourcing as a method aimed at only reducing some of the costs, it is still an important thing in the business entities' operations (Druica, 2012). This research was conducted by the American Management Association, focusing on both American and European companies. It resulted that only a few of the company's departments declared that they were motivated by a different motive rather than a reduction of costs. For example, for the Human Resources department the main reason for using outsourcing turned out to be: shortening the time of activity and significant improvement of quality (Greenburg and Canzoneri, 1997). Despite the fact that these studies were carried out some time ago, the results provided by the 2008 research do not show significant differences (HBR, 2008).

Corbett has defined other motives that companies decide to implement outsourcing. These include: continuous increase in the number and quality of services from suppliers (each new client increases the knowledge and abilities of service providers), access to modern technology and competitive pressure (Corbett, 2004).

It is interesting that as a result of outsourcing certain activities, companies can transform into virtual organizations. The growing tendency of companies to separate production and processes enables the creation of flexible networks, agile organizational structures. This is a specific and innovative solution (Yeo and Saboori-Deilami, 2017). Current competition in the areas of added value and innovation has changed the subject of outsourcing. Increasingly, contracts are signed with companies that provide global services. Whole production functions are assigned to third parties. At this point, the key moment of the supplier follows (Fera et al., 2017).

Of course, the implementation of outsourcing in the company is oriented to expectations of many benefits. An important result is the strive to improve the company's performance in the future. Therefore, it should be determined whether the use of outsourcing in companies from the industry sector is improving and how it affects the productivity of enterprises. While looking into the impact of outsourcing on the productivity there are still inconclusive research results. Therefore the aim of the paper is to identify the relation between outsourcing and the productivity of Polish industrial companies. Three research hypotheses were put in the article. In order to verify them the literature was examined, the financial data of companies listed on the Warsaw Stock Exchange and also aggregated data for the entire economy were collected.

The article consists of four parts. The following section discusses the problem given the growing popularity of outsourcing and its share in the performance of foreign enterprises. The second part focuses on the methodology and description of the sample being tested. The results of the study are presented in the third part. The last section is a summary and conclusions for Poland.

## 2. Productivity and outsourcing—literature review

Many factors influence the attractiveness of outsourcing. To meet the competition, firms need to show higher and higher productivity. Offered products should be delivered on time to the market and at as low prices as possible (Porter, 1980). It should be mentioned that many well-known scientists associate the increase in the popularity of outsourcing with the evolution of modern business. Gibson provided similar considerations. The results of Gibson's research, which concerned the use of outsourcing, indicated the growth of better opportunities and more efficient business models through the use of outsourcing (Gibson, 2004).

There is often a growing increase in production productive. This is proved by analysis conducted by Mann and Kirkegaard (Kirkegaard, 2004). Mann took the sample from companies operating on the market in the United States (Mann, 2003). It is worth mentioning that productivity growth is also noticeable in other countries. The results of the market research in China show that outsourcing has, *inter alia*, a relationship with productivity, trade, employment and innovation (Tingting, 2014). For example, Gorg and Hanley used data collected from the Irish sector (Gorg and Hanley 2005). On the other hand, some analyses suggest that the relationship between outsourcing and efficiency is not clearly defined. Kimura, while conducting research on Japanese companies, found no evidence of a positive relationship between the use of outsourcing and increased productivity (Kimura, 2002). Ellram, Bals, and E. Hartmann say that companies implement outsourcing as internal and external pressure increases, as part of adjusting to competition and reducing costs. In addition, companies achieve productivity improvements thanks to it (Tate et al., 2009).

When looking for research that analyzes the relationship between outsourcing and the performance of industrial companies, it is difficult to find specific information. Most of the published articles refer to international outsourcing. One example is Amiti and Wei (2006) but it focuses on outsourcing in the services sector, not the industry. The authors found a significant influence of outsourcing on productivity in the services sector (Amiti and Wei, 2006). Therefore, there may be some similarity in the industry sector. The positive effect of outsourcing on efficiency can also be found in international outsourcing. For example, Gorg and Hanley (2005) found its statistically significant positive effects (Gorg and Hanley, 2005).

Michela Pellicelli in her study shows that company management is already entering the next level of complexity through the waves of globalization and technological change. The researcher analyzes many studies indicating the growing role of outsourcing and offshoring. They play an important role in transforming companies into virtual organizations that outsource almost all activities. The growing role of outsourcing is revealed here (Pellicelli, 2018).

Looking at the benefits of outsourcing, the article checks how outsourcing is related to the productivity of Polish companies. Although there are analyzes based on the relation between outsourcing and productivity, this is new for Poland. This article brings new information about the growth of productivity of Polish industrial companies after the use of outsourcing.

### 3. Sample and methodology

The purpose of the article was to examine the impact of outsourcing on increasing productivity in Polish industrial companies. Polish companies that are listed on the Warsaw Stock Exchange have been analyzed in this article. Due to the specificity of the analysis, the research sample included 170 industrial companies. The choice of the 170 companies' sample that was ultimately analyzed looked like this: first from the pool of all companies I chose industrial companies, as the study concerns only this sector. I did it on the basis of descriptions of the characteristics of individual companies also available in this database. Due to the need for accurate calculations from the sample, companies were then selected for which all data needed to calculate productivity and data needed to determine outsourcing were provided. In this way I obtained my own database consisting of annual data for 170 companies from Poland. It consists of companies from many different industries.

Data for the study concerned the last nine years (2010–2018) and the identified sample was taken from publicly available annual consolidated financial statements published by companies on websites. Total number of observations is 1530 (firm-year). The sample was based on data provided by the Notoria database in 2019. This database contains financial statements of Polish companies.

Apart from individual data we use aggregated data for the entire economy. The data cover the period of 2010–2018. The source of information is Statistical Yearbook of the Republic of Poland (GUS, 2018).

In the literature there is a different approach to the essence of the company's performance and many possibilities of its evaluation. In the article, following the research of Levan Sabauri, the economic added value index (EVA) was used to determine the productivity of industrial companies. Levan Sabauri writes that other methods and estimates of a company's success are often inaccurate. It is necessary to use methods that in existing conditions would ensure the determination of the company's financial achievements. The EVA indicator is considered one of the best since the 1990s (Sabauri, 2014). The indicator was chosen because the company's valuation with this method is considered the most objective one. The economic added value index allows to assess the productivity of the company from the shareholders' point of view (from outside). This indicator takes into account historical financial results, current situation and predictions about the future of the company.

The economic value added was determined on the basis of own calculations because there is no EVA value data for the whole industry and for individual companies. Formula is used in the article:

$$EVA = z \cdot (I - T) - k \cdot K$$

where:

- EVA—economic added value
- $z$ —operating profit
- $T$ —tax rate on income tax
- $k$ —weighted average cost of capital
- $K$ —total capital.

Data on the operating profit ( $z$ ) of the sample is operating profit before interest and tax (EBIT). Data on EBIT come from financial statements. The tax rate on income tax ( $T$ ) is constant over the period (2010–2018) and in Poland it is 19%. Weighted average cost of capital ( $k$ ) was taken from financial statements and data published by brokerage houses. Total capital value ( $K$ ) for the sample was determined on the basis of total liabilities.

The value of outsourcing was defined based on the value of external services. There is no industry data on the share of individual types of costs in total costs, so this article uses statistical tools. External services are a key factor that has a significant impact on the final result of the analysis. They are one of the elements of a generic cost arrangement.

First, we will check whether the productivity of industrial companies has increased. If so, it will be possible to look for the reasons for this improvement. Therefore, the first (initial) hypothesis is:

Hypothesis 1: The productivity of Polish industrial enterprises improved over the period considered.

The variables used in this part of the analysis were economic added value (EVA) which they achieved in the period from 2010 to 2018. In order to verify whether hypothesis 1 is true and whether it can be concluded that the productivity of companies increased, the non-parametric Wilcoxon test was used. It was used to compare data collected before and after (dependent samples) to see if there was a statistically significant change. Distributions of variables significantly differ from the normal distribution, which was proved by application of the Shapiro-Wilk test  $p < 0.05$ .

The next step was the proper part of the study—checking whether the use of outsourcing has a positive impact on the development of the industrial sector. Therefore, we will check the hypothesis:

Hypothesis 2: The use of outsourcing is related to the increase in productivity in industrial companies.

The variables used in this part of the analysis were productivity (economic added value, EVA) and outsourcing (as the value of external services), in order to verify whether hypothesis 2 is true and whether it can be concluded that the use of outsourcing in the industry has a significant relationship with the productivity of the industry. We used the non-parametric Spearman correlation test. The possibility of using the test confirms the fact that the distributions of both variables are significantly different from the normal distribution (application of the Shapiro-Wilk test  $p < 0.05$ ).

Finally, it was verified how the use of outsourcing in industrial companies translates into the added value of the economy in Poland. Therefore, we will check the hypotheses:

Hypothesis 3a: The productivity of sample industrial companies have relationship with the gross value added achieved by Polish companies.

Hypothesis 3b: The use of outsourcing by sample industrial companies is related to gross value added achieved by Polish companies.

We compared individual data from the sample with aggregated data for the entire economy. The variables used in the analysis of hypothesis 3a were economic added value (EVA calculated on the basis of the listed industrial companies) and gross value added (reported by the Main Statistical Office for the entire economy). In order to verify whether the 3a hypothesis is true and whether it can be concluded that the productivity of listed industrial companies

has a significant relationship with gross value added of the entire economy, we used the parametric *r*-Pearson correlation test. The possibility of using the test confirms the fact that the distributions of both variables are normal distributions (using the Shapiro-Wilk test  $p > 0.05$ ).

The variables used in the analysis of hypothesis 3b were outsourcing (value of external services) and gross value added for the entire economy. In order to verify whether the hypothesis 3b is true and whether it can be concluded that the use of outsourcing has a significant relationship with gross value added, we used the non-parametric Spearman correlation test. The possibility of using the test confirms that the distributions of both variables are different. The result of the test checking the normality of the distribution (Shapiro-Wilk test) was  $p < 0.05$ .

#### 4. Results and their analysis

We can expect a differentiation in the share of external services because we are exploring the use of outsourcing by Polish listed industrial companies. This is proved because the industry consists of many departments so the specification of companies may differ from each other. Therefore, the value of external services for the sample of 170 industrial enterprises was averaged (2010–2018). All necessary data needed to determine the economic value added (EVA) is shown in Table 1 (operating profit, total capital and weighted average cost of capital). Basic descriptive statistics are also presented in Table 1.

Table 1. Basic descriptive statistics

(thou. PLN)	Mean	Median	Min	Max	St Dev
Operating profit (z)	2 510 506	19 959	-217 231 000	354 367 000	12 880 048
Total capital (K)	33 399 656	458 710	6 869	4 766 207 000	22 390 969
Weighted average cost of capital (k)	8.52%	8.00%	1.98%	15.70%	0.08%
External services for the sample of industrial companies from WSE	330 957	60 923	243	8 726 554	170 518
Productivity (EVA) for the sample of industrial companies from WSE	-660 415	-16 591	-489 147 750	286 746 835	6 725 771

Source: Author's own elaboration.

The research and verification of individual research hypotheses has led to such results:

1. The average result of operating profit in the examined sample is 2.51 million. The median value for the same sample is 19 959. The large difference between these values indicates the existence of outliers.
2. The sample also has a large difference between the minimum and maximum values. The sample is quite diverse. The observations deviate from the average value by more than 12.88 million.
3. In the total capital sample there is a big difference between the extreme values. The observations deviate from the average value by 22.39 million.
4. The average WACC value for the sample was 8.52% and the median was 8%. These values are very similar. The observations deviate from the mean value by less than 1%, this indicates no outliers.
5. There is a big difference in the mean and median value (mean 330 957, median 60 923). The value of external services deviates from the average value by 0,17 million. This confirms the large diversity of the sample.
6. Large discrepancies are in sample productivity. Observations deviate from the mean value by 6.73 million. Negative values in the sample indicate a lack of productivity. The smallest value is -0.49 million.

From the above statistics it can be concluded that the sample of 170 industrial companies is very diverse in terms of operating profit, total capital, external services and productivity. This is influenced by the nature of the business. Despite of this, the average of all tested elements shows positive values. This is a positive situation so we move on to hypothesis verification.

#### 4.1. Verification of hypothesis 1

At the beginning, based on the statistical test (Wilcoxon test), the result can be considered as significant  $p = 0.0007$  ( $p < 0.001$ ). This means that we accept the hypothesis 1. It can be concluded that the productivity of industrial companies has improved significantly over the analyzed period.

#### 4.2. Verification of hypothesis 2

The next step was to investigate whether the use of outsourcing has a positive relationship with the development of the industrial sector. Based on the statistical test (using the Spearman correlation test), it can be concluded that the correlation coefficients determined are significant for the test ( $p < 0.05$ ). This means that we accept the hypothesis 2.

Table 2. The relationship between outsourcing on productivity

	Outsourcing (external services)	Productivity (EVA)
Outsourcing (external services)	1.00	
Productivity (EVA)	0.22618*	1.00

\* Correlation coefficients are significant with  $p < 0.05$ .

Source: Author's own elaboration.

Analyzing the correlation coefficient  $r = 0.226$ , it can be concluded that there is a positive correlation ( $|r| > 0$ ) between the productivity measured with EVA and outsourcing measured by the value of external services. This means that as the outsourcing increases, the productivity of industrial enterprises also increases. Taking into account hypothesis 2, it can be concluded that there is significant positive relationship between use of outsourcing and productivity growth in Polish industrial companies. Taking hypothesis 2, it can be concluded that the use of outsourcing has a significant and positive relationship with the productivity of Polish industrial companies.

### 4.3. Verification of hypothesis 3a

Next, it was examined whether the productivity of Polish listed industrial companies has a positive relationship with the productivity of the entire Polish economy. Based on aggregated data and using the statistical test (application of the  $r$ -Pearson correlation test) we say that the correlation coefficients determined are significant for the test ( $p < 0,05$ ). This means that we accept the hypothesis 3a.

Table 3. The relationship between industry productivity and the productivity of the Polish economy

	Productivity (EVA) for the sample of industrial companies from WSE	Productivity of the Polish economy (gross value added)
Productivity (EVA) for the sample of industrial companies from WSE	1.00	
Productivity of the Polish economy (gross value added)—aggregated data	0.15544*	1.00

\* Correlation coefficients are significant with  $p < 0.05$ .

Source: Author's own elaboration.

Analyzing the correlation coefficient  $r = 0.1544$ , it can be concluded that there is a positive correlation ( $|r| > 0$ ) between the efficiency measured by the EVA index and the economy's



productivity measured by the gross value added. This means that as productivity of industrial companies listed on WSE increases, the productivity of the entire economy also increases. Assuming hypothesis 3a, it can be concluded that there is a relationship between the productivity of listed industrial companies and the productivity of the entire economy in Poland.

#### 4.4. Verification of hypothesis 3b

Finally, it was examined whether the outsourcing of industrial listed companies has a positive relationship with the performance of the Polish economy. Based on the statistical test (using the Spearman correlation test), it can be concluded that the correlation coefficients determined are significant for the test ( $p < 0.05$ ). This means that we accept the hypothesis 3b.

Table 4. The relationship between outsourcing in industrial listed companies and the productivity of the Polish economy

	Outsourcing (external services)	Productivity of the Polish economy (gross value added)
Outsourcing (external services) for the sample of industrial companies from WSE	1.00	
Productivity of the Polish economy (gross value added)—aggregated data	0.5554*	1.00

\* Correlation coefficients are significant with  $p < 0.05$ .

S o u r c e: Author's own elaboration.

Analyzing the correlation coefficient  $r = 0,5554$ , it can be concluded that there is a positive strong correlation ( $|r| > 0$ ) between outsourcing measured by the value of external services and the productivity of the Polish economy. This means that as the outsourcing (for the sample of 170 companies) increases, the efficiency of the entire economy also increases. Accepting the hypothesis 3b, it can be concluded that the use of external suppliers' services by industrial listed companies has a significant relationship with the productivity of the entire economy in Poland. For better illustration of the example, the values are shown in Figure 1.

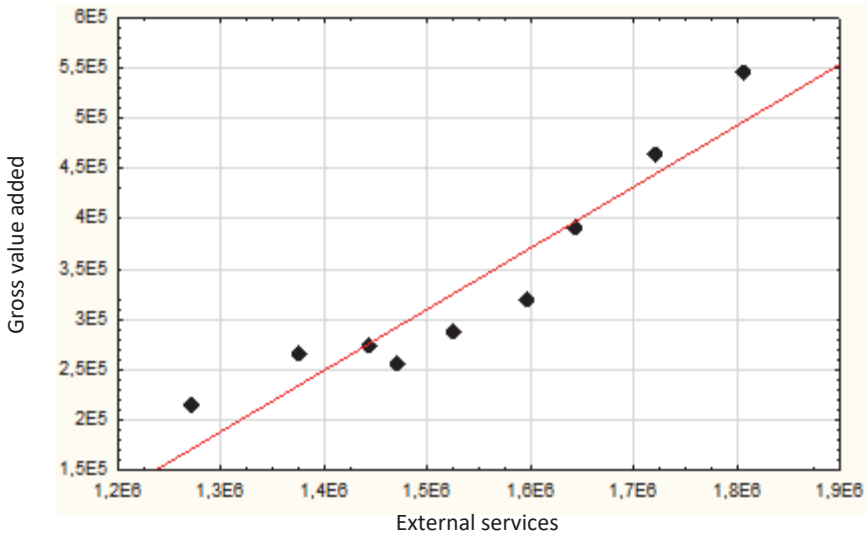


Figure 1. Correlation—relationship between external services and gross value added

Source: Author's own elaboration.

As previously written, the use of external suppliers' services has a relationship with the productivity of the entire economy in Poland. The correlation graph shows a positive statistically linear relationship. Along with the increase in the value of external services, the gross value added of the entire Polish economy grows. It also confirms that by using the services offered by external suppliers, the performance of enterprises and the entire national economy is increasing.

## 5. Conclusions

Polish companies that are listed on the Warsaw Stock Exchange have been analyzed. Due to the specificity of the conducted research, the research sample included 170 industrial enterprises over 2010–2018 period. The analysis of the sample taken from the industry sector made it possible to verify the adopted hypotheses. It can be concluded that the performance of companies has improved significantly over 2010–2018 period. Then, it was proved that the use of outsourcing by industrial listed companies has a significant positive relationship with their productivity. Finally, it was found that the increase in the productivity of listed industrial companies translates into the increase in the productivity of the entire economy in the country. Thus, overall results show that industrial listed companies are increasingly using solutions provided by external suppliers. It turns out that it is a good idea for them to develop their business. It has also positive effects on the whole economy.

This analysis has proved that although industrial companies use outsourcing to a lesser extent than companies from service sector the use of outsourcing in industry has grown significantly over the past years. These results proved to be in line with the assumptions of Axelrod (2004) who stated that outsourcing is an increasingly used management method.

However, there are further issues to consider. Since we already know how outsourcing affects the productivity of industrial companies, it is worth checking how outsourcing affects the productivity of service companies and what are the differences between them in the overall impact on the productivity of the Polish economy.

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## Wpływ outsourcingu na produktywność polskich przedsiębiorstw przemysłowych

**Abstrakt:** Wciąż rosnące wymagania konkurencyjne skłaniają firmy do wprowadzania nowych rozwiązań w swojej działalności. W rezultacie firmy przemysłowe coraz częściej decydują się na wdrożenie outsourcingu. Celem artykułu było zbadanie wpływu wykorzystania outsourcingu na wzrost produktywności firm. W badaniu wzięło udział 170 przedsiębiorstw przemysłowych, które są notowane na Giełdzie Papierów Wartościowych w Warszawie. Badanie obejmuje okres 2010–2018. Przeprowadzenie badania umożliwia stwierdzenie, że outsourcing poprawił produktywność polskich firm przemysłowych. Dzięki testom statystycznym uzyskano wyniki, które pokazują, że firmy przemysłowe coraz

częściej korzystają z rozwiązań dostarczanych przez zewnętrznych dostawców. Zastosowanie outsourcingu w przedsiębiorstwach poprawia ich produktywność, jak również wpływa pozytywnie na całą gospodarkę narodową. Outsourcing zmierzono na podstawie ilości usług obcych, a produktywność wskaźnikiem ekonomicznej wartości dodanej (EVA). Należy zaznaczyć, że istnieje pewne ograniczenie w interpretacji otrzymanych wyników. Usługi obce składają się również z usług, które nie zawsze są zlecane na zewnątrz, na przykład usługi bankowe. Opracowanie zawiera nowe informacje dla Polaki. Umożliwia naukowcom przeprowadzanie bardziej szczegółowych analiz outsourcingowych.

**Słowa kluczowe:** outsourcing, produktywność, firmy przemysłowe, usługi zagraniczne, ekonomiczna wartość dodana

# FinTech—definition, taxonomy and historical approach

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**Abstract:** For more than decade, the financial industry has experienced a continuous evolution in service delivery due to digitalization. Financial technology, commonly called FinTech, is now a highly used buzzword. FinTech brings about a new paradigm in which enterprises use modern technology to create innovations in the financial sector. This phenomenon, although widely discussed in modern literature, has many gaps in research. These special shortages are apparent in terms of its correct understanding. Therefore, the purpose of the article is to summarize FinTech in terms of definition, history and taxonomy. In the field of reviewing results, publishing and reporting results, as well as the results of the biggest consulting companies, a preview of various authors related to FinTech definitions was made. In addition, the stages of its development were grouped and discussed as well as criteria for types of FinTech phenomena were described. This is a review article.

**Keywords:** definition of FinTech, history of FinTech, taxonomy of FinTech

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## 1. Introduction

New technologies play an increasingly important role in the financial services sector, facing a radical transformation. The information and communication technology revolution has made its presence felt in the provision of innovative financial services (Marcinkowska et al., 2014, p. 28). Over the last decade, besides financial intermediation institutions associated in their traditional sense, new entities providing services from the borderline of finance and technology have appeared. The presence of the latter on the financial services market has laid the foundations for a new phenomenon. In the history of economic sciences it is called FinTech.

Although the FinTech technology has only been mentioned in context, novelty and innovation for several years, the earliest mentions of it appeared in the American press at the beginning of the 1980s. They concerned solutions involving

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computerization and mass use of telecommunications in banks and financial institutions (Solarz, 2017, p. 236). FinTech's dynamic development is strongly correlated to the development of the Internet, which dates back to the early 1990s. However, the FinTech Revolution began for good with the mass spread of smartphones, i.e. after 2010.

FinTech offers innovative financial services on a subject-by-subject basis. It is particularly common or used in areas such as payments, financing and the provision of infrastructure using modern technologies to provide financial services (Big Picture, 2019a). According to the latest KPMG's report *The Pulse of Fintech 2018* (KPMG, 2019, p. 4), there were allocated 111.8 billion USD for global investments in FinTech entities in 2018.

Despite the growing interest in FinTech, the literature on the subject still lacks a theoretical order. Most of the knowledge in this area is based on some commercial publications and reports which were provided by the largest consulting companies (Gimpel, Rau and Röglinger, 2017, p. 246).

The aim of this article is to systematize and organize FinTech issues on three levels: definition and etymology, taxonomy and history. The structure of the article consists of an introduction, three parts and a summary. The first part explains the origin of the word FinTech. Based on the literature review, FinTech definitions were compared. The second part presents some criteria of FinTech division. The proposed typology of the FinTech phenomenon is a response to the lack of a uniform and consistent approach among numerous authors as regards the criteria used to classify the phenomenon. The last, third part is a historical description of FinTech divided into its three eras. The whole deliberations are summarized in the conclusion.

A detailed analysis of FinTech was provided by the latest Polish and foreign scientific publications and reports from the largest consulting companies.

## 2. The concept of FinTech

The etymology of FinTech derives from the combination of two English words: finance (financial services) and technology (information technology) (Gimpel, Rau and Röglinger, 2017, p. 245). English dictionary defines FinTech as "computer programs or other technology used to support or enable banking and financial services" (Lexico, 2019). The phenomenon of FinTech has been discussed for several years in the context of innovation. However, at the beginning of 1980s the American press provided the first references to FinTech (Solarz, 2017, p. 236). In many sources we can find information that the term *FinTech* was first used in the early 1990s in reference to the Financial Services Technology Consortium project which was implemented by Citicorp (Hochstein, 2015).<sup>1</sup> FinTech started to identify with an innovative business model from 2014 (Gimpel, Rau and Röglinger, 2017, p. 245).

FinTech, despite discussion in the literature, has not yet been clearly defined. The modern nature of the FinTech issue makes the first attempts to describe it in scientific and popular science literature. An overview of the most popular definitions is presented in Table 1.

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<sup>1</sup> In 1998, as a result of the merger of Citicorp and Travelers Group, Citigroup was established.

Table 1. Overview of FinTech definitions

Source	Year	Definition
D. W. Arner, J. Barberis, R.P. Buckley, <i>The Evolution of fintech: A new post-crisis paradigm</i>	2015	FinTech is an application of technology that supports the process of providing financial solutions. FinTech is not limited to specific sectors (e.g. the banking sector) or to a specific business model (e.g. peer-to-peer lending) <sup>2</sup> , but covers all financial services and products in the traditional sense.
D. Huang, <i>Banks and fintech firms' relationship status: It's complicated</i>	2015	FinTech is a company that uses technology in the areas of banking services, payments, data analysis, capital markets and financial management.
Deloitte, <i>FinTech in CEE: Charting the course for innovation in financial services technology</i>	2016	FinTech are IT solutions developed internally by large financial institutions (banks, insurance companies or investment funds) or delivered to these entities by external suppliers (both large and small enterprises). The purpose of these solutions is to support financial institutions in the provision of basic services, but also to improve the product portfolio, develop a new business model, or improve the efficiency of processes. These solutions include API <sup>3</sup> (Application Programming Interface), data platforms, alternative insurance systems, alternative systems for trading financial instruments, currency exchange platforms (currency exchange offices) and others.
Y. Kim, J. Choi, Y. J. Parl, J. Yeon, <i>The Adoption of Mobile Payment Services for "Fintech"</i>	2016	FinTech is a service sector that increases the efficiency of the financial system through the use of information technology. In terms of entities, FinTech is a non-financial company that provides services in the area of payments and investments using innovative technology, without cooperation with a financial company (e.g. Apple Pay and AliPay).
P. Widawski, M. Borowik, P. Brewiński, M. Brakoniecki, P. Sterczala, M. Olczak, <i>FinTech w Polsce – bariery i szanse rozwoju</i>	2016	FinTech is a modern way of making various types of transactions that improve but also create the financial industry. FinTech solutions can be offered by innovative start-ups and mature, well-established financial institution.
D. Varga, <i>Fintech, the new era of financial services</i>	2017	FinTech is a company that is not regulated at all in the legal system or is only partially regulated. The task of FinTech entities is to provide innovative financial services through new technology. FinTech companies were established to provide modern financial services that go beyond the traditional scope.

<sup>2</sup> Peer-to-peer lending—social lending; one form of investment in which many investors jointly lend an individual the amount they need through an online platform.

<sup>3</sup> API (Application Programming Interface)—an application programming interface; a way, understood as a strictly defined set of rules and their descriptions, in which computer programmes communicate with each other. In the context of banking services, the purpose of API is to share business processes by creating value chains operated by many entities (including, in particular, entities that are not financial intermediaries in their traditional sense).

KNF, <i>Raport KNF z prac Zespołu roboczego ds. rozwoju innowacji finansowych (FinTech)</i>	2017	FinTech includes: – supervised entities (banks, insurance companies, payment institutions, investment funds) and – unsupervised entities (usually start-ups, i.e. entities that are just starting up their business).
Ernst & Young, <i>EY FinTech Adoption Index 2018</i>	2018	FinTech refers to an industry that includes new companies, scale-up companies and mature companies, including those providing non-financial services. FinTech entities focus their attention on two aspects: – understanding the customer’s needs and – the use of technology in an innovative and unique way.
W. Szpringer, <i>Nowe technologie a sektor finansowy: FinTech jako szansa i zagrożenie</i>	2017	FinTech are companies that are a new, special category of para-banks. Technology companies use ICT <sup>4</sup> (Information Communication Technology) to provide financial services.
T. Nakashima, <i>Creating credit by making use of mobility with FinTech and IoT</i>	2018	FinTech is a technology that uses IT in the financial world. FinTech therefore refers to new technological solutions that will even initiate a revolutionary transformation in the world of finance.
BIS, <i>Sound Practices: Implications of fintech developments for banks and bank supervisors</i>	2018	FinTech is a technological financial innovation and results in new business models, applications, processes or products. They have a significant, material impact on the performance of financial markets and institutions and on the providing of financial services.
Financial Stability Board, <i>FinTech and market structure in financial services: Market developments and potential financial stability implications</i>	2019	FinTech is a technological innovation that can help to increase market access, introduce a new product offer and reduce costs for customers. Unlike traditional financial intermediaries, FinTech entities are not regulated.

S o u r c e: Author’s own elaboration based on the sources listed in the first column.

The definitions in Table 1 raise an important issue, namely the disagreement on the subjectivity of FinTech. Some authors identify FinTech with the service (Arner, Barberis and Buckley, 2015, Kim et al., 2016; Widawski et al., 2016), others associate it with innovation and technology (Deloitte, 2016; BIS, 2018; Nakashima, 2018; Financial Stability Board, 2019), while others describe FinTech as a company (Huang, 2015; Ernst & Young, 2017; KNF, 2017; Szpringer, 2017; Varga, 2017). In foreign sources, FinTech is more often defined as technology and innovation. However, the authors stress in Polish literature the importance of FinTech as a company.

<sup>4</sup> ICT (Information Communication Technology)—a division of telecommunications and information technology, dealing with the technology of processing, collecting and transmitting information in electronic form.



Additionally, the presented definitions indicate a very important feature of FinTech, namely the lack of a clearly defined limit of its activity. FinTech's activity in two areas: financial and technological services, make it difficult to reliably assess its scale and identify the risks associated with it. Therefore, developing a single definition is particularly important because FinTech entities have been active players on the financial services market for a long time, and their activities are not subject to such restrictive legal regulations as traditional entities.

### 3. Taxonomy of FinTech

The term *taxonomy* is used alternatively with the term *classification* or *typology*. With the help of one external feature, systematics allows to organize and group the analyzed objects which do not have common features internally, i.e. among themselves (Cook, Goh and Chung, 1999, p. 320). Taxonomy is especially helpful when the available knowledge is small in a particular field (Haddad and Hornuf, 2018, p. 247) and little valuable information could be found about FinTech.

The existing deficit, or even lack of a consistent approach among researchers in the context of a single definition of FinTech, approved and shared (by both the scientific community and practitioners), determines similarly the gap in its classification. Based on the studied scientific materials and reports prepared by the largest consulting companies, Table 2 presents and discusses the taxonomy of FinTech.

Table 2. Taxonomy of FinTech

Classification	Field	Details
Duration	Innovative start-ups	Unsupervised entities, usually small enterprises just starting up.
	Mature, well-established financial institution	Supervised entities (banks, insurance companies, payment institutions, investment funds).
Customer orientation	Retail	Entities that provide financial services in the retail client segment.
	SME	Entities that provide financial services in the segment of small and medium-sized enterprises.
	Corporate	Includes sales and trading of securities, retail investments, current account deposits and asset management in the corporate client segment.
Scope of activity	Global	Digital platforms that create experience and higher value for clients than banks, insurers, investment firms, payment institutions and small start-ups on a global scale. As an example, BigTech entities are mentioned (referred to as GAFA—Google, Amazon, Facebook, Apple).
	International	Entities that provide technology and finance services within two or more countries.
	Local	Entities that operate within a single country.

Business model	Financing	A category which includes entities providing financing for a specific activity or project. Entities classified in this category provide crowdfunding, crowdlending, micro-credit and factoring services.
	Payments	FinTech entities whose business model focuses on providing innovative payment solutions, such as mobile payment systems, e-portfolios, crypto, etc.
	Asset management	This classification includes asset managers which, in particular, provide automated financial advisory services (robo-advisors), social trading, wealth management services, personal finance management applications or software.
	Insurance	Category that includes entities which accept contributions from a group of persons to cover risks (P2P insurance) and entities providing risk management services.
	Loyalty programmes	FinTech entities that use Big Data analytics in the process of providing customer loyalty programme services and work closely with payment institutions.
	Risk management	FinTech entities, which provide risk management services and support in the financial assessment of the debtor.
	Stock exchange services	FinTech entities that provide services on the capital market, such as trading in securities, derivatives or other financial instruments.
	Regulatory technology ( <i>RegTech</i> )	Technology platforms that enable the automatic collection and analysis of a wide range of data in the context of regulatory requirements and reporting, which can be sent in real time to an appropriately wide group of entities (e.g. regulators and supervisors) thanks to distributed register technology. The term was first used by the British Financial Conduct Authority in 2015.
	Other	The category that includes entities offering training for investors, or the essence of their activity comes down to developing and then providing innovative solutions and business models, including for other FinTech entities.
Service provision	Interaction	Providing services and taking into account the mutual relations between the FinTech entity and the customer. It includes 7 areas: personalization, information exchange, types of interaction, user network, IT role, hybrids and service distribution channel strategy.
	Data processing	In this category, FinTech entities provide data processing services which consist of 4 dimensions: data source, time horizon, data use and data type.
	Monetization	This category includes FinTech entities explaining how services are converted into money (monetization). The approach includes 4 dimensions: payment schedule, user currency, partner currency and business cooperation.

Service area	The banking sector	FinTech services provided to the banking sector, including banking operations, deposits and loans, capital investments, payments.
	Capital investment area	FinTech services provided in the area of capital investments, including stock exchange services.
	The insurance sector	FinTech services provided in the insurance sector, including property insurance, life insurance, peer-to-peer insurance, insurance operations.
	Real estate market	FinTech services provided in the real estate market.

Source: Author's own elaboration based on Gimpel, Rau and Röglinger, 2018, pp. 250–252; Haddad and Hornuf, 2018, p. 2; McKinsey & Company, 2016, p. 7; Solarz, 2017, p. 237; Big Picture, 2019b.

Table 2 is an attempt to systematize and order the knowledge in the scope of the FinTech division criteria described so far in the literature. The authors who discuss FinTech in their publications most often use the following typologies: (1) duration, (2) customer orientation, (3) scope of activity, (4) business model, (5) service provision and (6) service area. Approaches 1–4 present scope of FinTech as an enterprise. Approaches 5–6 relate to the scope of the service provided.

On the basis of considerations concerning the concept of FinTech (discussed in the first part of the article) as well as considerations concerning the taxonomy of FinTech (discussed in the second part of the article), three basic characteristics of the definition of FinTech should be adopted: (1) definition approach: company, innovation and technology, service; (2) scope of activity: global, international, local; (3) service area: the banking sector, capital investment area, the insurance sector, real estate market. The three characteristics of the definition indicated above define accordingly: (1) the subjectivity and/ or objectivity of FinTech, (2) the size of its scale, and (3) the direction in which it provides its services. The main purpose of these characteristics is to achieve a single definition that is accepted and applied universally by all FinTech interested parties.

In view of the above discussion and its economic nature, the leading definition of FinTech is that FinTech is an enterprise (1) which has as its objective the provision of financial services in its own name or the provision of financial services to other entities, but is a financial intermediary in the classical sense. The financial services provided by FinTech companies must be characterized by their innovative, original character. FinTech should use the most modern technology in the provision of financial services. The scope of activity (2) can be global (usually large technology platforms defined by the term *BigTech*), international (mature, well-established entities) or local (usually small companies just starting their operations). According to the last characteristic (3), FinTech-companies can provide or deliver financial services in different segments of the financial market.

The above definition omits the issue of legal regulations concerning FinTech entities due to their economic consideration.

## 4. The evolution of FinTech

The beginning of innovations that gave rise to the FinTech industry can be seen in the financial revolution taking place in Europe at the end of the seventeenth century. It was a time of expansion of insurance, banking, capital companies, which significantly marked their role in the process of industrial revolution (Arner, Barberis and Buckley, 2015, pp. 6–7). FinTech is not a new phenomenon. Numerous publications attempt to describe and present it against the background of historical facts.

On the basis of a literature review, history of FinTech can be classified into three eras: FinTech 1.0, FinTech 2.0, FinTech 3.0. The authors of *The Evolution of FinTech: A new post-crisis paradigm* (Arner, Barberis and Buckley, 2015, pp. 15–18) additionally describe the FinTech 3.5 era.

### 4.1. FinTech 1.0 (1866–1967)

FinTech time should be considered from the 1860s. At that time Giovanni Caselli invented a device known as a panthelegraph, which was mainly used to verify signatures in bank transactions by sending and receiving transmissions via telegraph cables. This invention is considered by some as the first step towards the FinTech revolution (Getsmarter, 2018).

After the Second World War, a fast technological progress was observed after the second World War, especially in the field of communication and information technology. The first tools for breaking codes developed on computers provided by International Business Machines (IBM) that appeared in that time. The 1950s were the time when new credit card providers debuted on the American banking services market (Diners Club in 1950 and American Express in 1958). This consumer revolution was supported by the creation of the Interbank Card Association, now MasterCard, in the United States in 1966. The end of the FinTech 1.0 era is marked by the introduction of the first ATM in the United Kingdom in 1967 by the financial holding Barclays (Arner, Barberis and Buckley, 2015, pp. 6–7).

### 4.2. FinTech 2.0 (1967–2008)

Era FinTech 2.0 was characterized by the transfer of financial services from analog to digital areas. Here is a talk of a second financial globalization, related to the reaction of financial markets to the stock market crash in the USA in 1987. In the area of payments, in 1968 the Inter-Computer Office in the United Kingdom was established, which was the basis of today's automated inter-bank settlement services. The electronic payment system—Fedwire (Arner, Barberis and Buckley, 2015, pp. 12–15), originally established in 1918 by the Federal Reserve System in the United States (Getsmarter, 2019), was launched in the early 1970s. Recognizing the need to interconnect cross-border domestic payment systems, the Society for Worldwide Interbank Financial Telecommunication (SWIFT) was established in 1973.

In the 1970s, the fall of Herstatt clearly exposed the risks associated with the growing international links between finance and technology. This biggest crisis in the post-war history of the German banking sector caused the first serious discussions on regulatory issues (Arner, Barberis and Buckley, 2015, pp. 12–15). The breakdown of the Bretton Woods exchange rate

system in 1973 and a moment later the Herstatt crisis contributed to the creation of the Basel Committee on Banking Supervision (Szczepańska, Sotomska-Krzysztofik and Pawliszyn, 2004, p. 36) at the end of 1974 under the auspices of the Bank for International Settlements (BIS) (Koterwas, 2003, p. 56).

As computerization and technology development had progressed, the securities area also saw a gradual phase out of paper-based trading in favour of electronic trading. In the United States in 1980 and in the United Kingdom in 1983 online banking for customers was first introduced. Throughout the entire FinTech 2.0 period, financial institutions increased the use of IT in their internal operations, gradually replacing most paper-based mechanisms. In 1981 Michael Bloomberg founded Innovation Market Solutions (IMS). In 1984, financial institutions became more and more willing to use Bloomberg terminals which only proves that traditional financial services companies were the recipients of tools provided by FinTech.

In the late 1980s, financial services became largely a digital industry, based on electronic transactions between financial institutions, financial market participants and customers worldwide. The advent of the Internet began another stage of growth. In 2001, eight banks in the United States had at least one million customers online. By 2005, the first banks without physical branches (e.g. ING Direct, HSBC Direct, Egg Banking) had appeared in the United Kingdom. At the beginning of the twenty-first century the bank's internal and external processes were completely digitized. In addition, regulators increasingly used technology, especially in the area of stock exchanges, and computerized transaction systems and data logs became the most common source of information (Arner, Barberis and Buckley, 2015, pp. 12–15).

### 4.3. FinTech 3.0, FinTech 3.5

The financial crisis of 2008 is seen as a turning point and at the same time the beginning of the FinTech 3.0 era. After 2008, the market situation was encouraging the emergence of innovative entities that use financial and technological know-how in their activities (Arner, Barberis and Buckley, 2015, pp. 15–18). The basis for the dynamic development of technological innovations was the progress in technology (Gąsioriewicz and Monkiewicz, 2019, p. 97), such as artificial intelligence (AI) and machine learning, databases (Big Data), distributed computing, cryptography and mobile Internet access, which initiated the emergence of new applications for various financial institutions (Schmaus, Duran and von Steinaecker, 2019, p. 3). The most important reasons that made the dynamic development of the FinTech 3.0 era possible (Arner, Barberis and Buckley, 2015, pp. 15–18) include the following:

- social perception—new experiences and habits of consumers make FinTech entities challenging traditional financial institutions (Grzywacz and Jagodzińska-Komar, 2018, p. 78). In the digital world, customers expect from a financial service provider agility, flexibility, and continuous improvement of the quality of services offered;
- regulatory control—the global financial crisis has strengthened international confidence in the need to change the banking regulatory system (Pyka, 2014, p. 196). New regulations: CRD IV/CRR, PSD2, MiFiD II, IFRS9, RODO and amendments to the EMIR, are only one of the most important EU legal solutions for the financial sector, and in particu-

lar for the banking sector in terms of services provided (EBC, 2018, p. 3). The increasing complexity, costs and risks associated with the management of regulatory and legal obligations is a constant challenge for traditional financial services providers. The use of solutions provided by the FinTech industry such as artificial intelligence, machine learning and cloud solutions can help traditional financial institutions to assess, monitor and control compliance with regulatory obligations faster and more effectively;

- economic conditions—in response to the economic breakdown caused by the financial crisis in 2007–2009, central banks of the most economically developed countries of the world reduced interest rates to the historically lowest level (Kozak and Ochnio, 2017, pp. 65–66). At that time, interest rates were nearly zero, and in countries such as Switzerland, Denmark or Germany (Lister, 2018, p. 3) they even reached negative values. The environment of low interest rates strongly weakened the attractiveness of investing savings in bank deposits, and investors began to look for new alternative sources of wealth creation (Kozak and Ochnio, 2017, pp. 68). These macroeconomic conditions marked their presence in the process of transforming the functions of banks, only accelerating the emergence of financial innovations. Financial innovations introduced by FinTech entities have become a leading factor in the transformation of the financial sector on a global scale. The Internet and digitization, convergence of electronic media, interoperability and compatibility of hardware and software made it possible for FinTech entities to start their operations without opening physical branches, as in the case of traditional financial entities.

Era FinTech 3.0 showed that financial services are no longer provided only by regulated financial institutions (Arner, Barberis and Buckley, 2015, pp. 15–18). According to D. W. Arner, J. Barberis and R. P. Buckley (2015, pp. 15–18), the FinTech 3.5 era, which began in 2011, should be specified from the FinTech 3.0 era. The FinTech 3.5 era is an intense development of innovation by most researchers as defined by J. A. Schumpeter (1960, p. 27) in 1912 (Marciniak, 2010, p. 10).

The FinTech 3.5 era can be characterized as the blurring of the gap between FinTech and banks, and the emergence of digital service platforms (Szpringer, 2019, p. 10). Three important milestones stand out in this phase:

- establishment and implementation of blockchain network in 2009 (Hulicki and Lustofin, 2017, p. 31), bases for cryptovalent bitcoin. Cryptovaluted bitcoin was the first solution functioning in blockchain technology (Iansiti and Lakhani, 2017, p. 5). According to the report of the World Economic Forum, blockchain technology has been gaining in importance since 2015 (World Economic Forum, 2015, p. 6);
- implementation of mobile payments based on NFC (Near Field Communication)<sup>5</sup> technology (Milic-Czerniak, 2019, p. 56). One of the first such systems was the Google Wallet payment system created in 2011 (Getsmarter, 2019);
- development of biometric solutions based on face recognition (Zalewska-Bochenko, 2017, p. 280). In 2017 BigTech Alibaba implemented Smile to pay solution, which allows users to pay with a smile to the camera (Getsmarter, 2019).

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<sup>5</sup> NFC is a technology that allows you to make contactless payments with your smartphone. This functionality is made possible by equipping smartphones with an NFC module.

FinTech 3.0 and 3.5 eras are also an intensive growth in the number of FinTech companies. The essence of the FinTech phenomenon in 2008–2017 is shown in Figure 1.

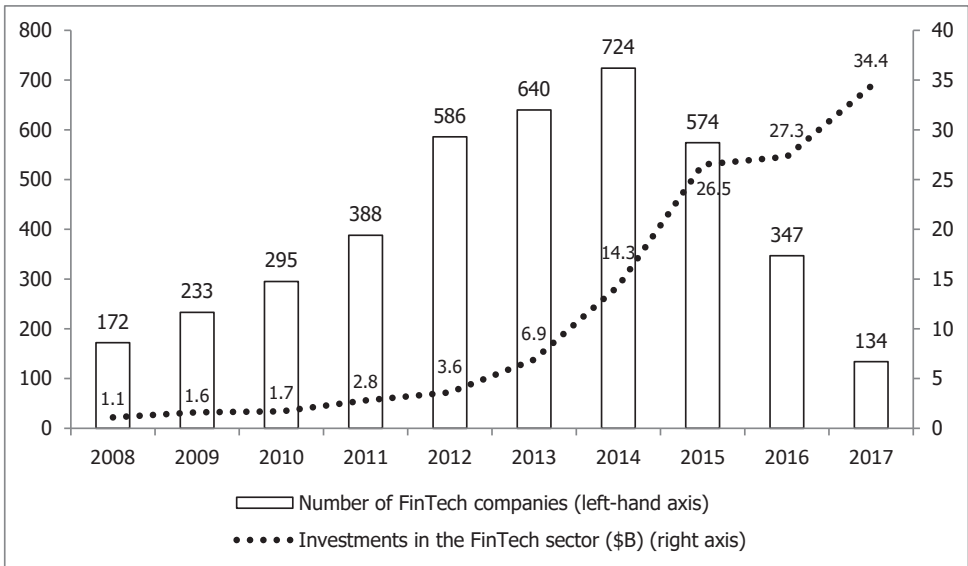


Figure 1. Number of FinTech companies established annually and investments in FinTech (in \$B) in 2008–2017

Source: Author’s own elaboration based on raport Deloitte, 2017, p. 6.

The data show that the highest number of newly established FinTech companies was in 2014 (724). The rising trend in the number of FinTech start-ups continued until 2015. Since then, a decrease has been observed, with simultaneous increasing investments in FinTech entities (from 26.5 billion USD in 2015 to 34.4 billion USD in 2017).

FinTech entities provide services in various areas of the financial sector. Therefore, they have adapted to market conditions to varying degrees and timescales. For example, FinTech entities providing insurance services achieved a phase of intensive growth in terms of the number of newly established companies only in the years 2013–2016 compared to previous years, while in the same period the banking services sector had seen a decline in this respect (Deloitte, 2017, p. 3). Some of the innovations created by FinTech are still evolving, some have not found specific applications or were not ready for implementation.

The whole consideration of the second part of the article is summarized in Table 3.

Table 3. Evolution of FinTech

Era	FinTech 1.0	FinTech 2.0	FinTech 3.0	FinTech 3.5
Date	1866–1967	1967–2008	2008–today	
Geography	Global Developed markets	Global Developed markets	Developing markets	Emerging markets Developing markets
Key elements	Computer	Internet	Smartphone Start-up New participants in the financial services market	
Shift origin	The Industrial Revolution	Digitization of processes	The financial crisis in 2008	Development of innovations

Source: Author's own elaboration based on Arner, 2016, p. 8.

## 5. Conclusion

For less than a decade, FinTech has been experiencing a boom. Despite the growing interest in FinTech, both from academics and corporate managers, many issues still require in-depth analysis. This issue creates new challenges for science and a field for inspiring inquiries and analysis requiring interdisciplinary studies and research projects.

The lack of definition consistency among the authors of numerous FinTech publications and the fact that there are many unordered FinTech taxonomies forced the need for an in-depth investigation.

On the basis of a review of the latest domestic and foreign scientific publications, as well as the analysis of the results of reports from the largest consulting companies, it was possible to identify the most recent:

- 3 definitions of FinTech: company, innovation and technology, service;
- 6 taxonomy of FinTech: (a) subject scope: duration, customer orientation, scope of activity, business model; (b) scope of service provided: service provision and service area;
- 3 eras of FinTech: FinTech 1.0, FinTech 2.0, FinTech 3.0.

The conclusions from the above considerations allowed to identify three key characteristics for the FinTech definition. These include: (1) subjective approach, (2) scope of activity, (3) service area. Their identification turned out to be necessary in the process of building the FinTech definition. Thus, FinTech was summarized and systematized on the definition and taxonomic grounds. The third part of the article, which focuses on the history of FinTech, completes the whole discussion.

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IFRS 9 Financial Instruments. International Financial Reporting Standards Foundation.

Regulation (EU) No. 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.

Regulation (EU) No. 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No. 648/2012 Text with EEA relevance

Regulation (EU) No. 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

## Zjawisko FinTech – ujęcie definicyjne, taksonomiczne oraz historyczne

**Abstrakt:** Od ponad dekady sektor finansowy doświadcza nieustannej ewolucji w zakresie usług z powodu digitalizacji. Technologia finansowa, potocznie nazywana FinTech, coraz bardziej zyskuje na znaczeniu. FinTech wprowadza nowy paradygmat, w którym przedsiębiorstwa przy wykorzystaniu nowoczesnej technologii kreują innowacje w sektorze finansowym. Zjawisko FinTech, choć szeroko dyskutowane we współczesnej literaturze, posiada wiele luk badawczych. Szczególnie braki te uwidaczniają się w zakresie jego poprawnego, spójnego rozumienia. W związku z powyższym celem

niniejszego artykułu jest podsumowanie zjawiska FinTech na gruncie definicyjnym, taksonomicznym oraz historycznym. Na podstawie przeglądu najnowszych, krajowych oraz zagranicznych publikacji naukowych, jak również na podstawie analizy wyników raportów największych firm consultingowych dokonano zestawienia podglądów różnych autorów dotyczących definiowania zjawiska FinTech. Dodatkowo opracowano i omówiono typologię zjawiska FinTech oraz wyodrębniono i opisano etapy jego rozwoju. Artykuł ma charakter przeglądowy.

**Słowa kluczowe:** definicja FinTech, historia FinTech, taksonomia FinTech



# A strategic tourism knowledge base for socio-economic and environmental data analytics: The role of Big Data analysis

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**Abstract:** This research studies the application of modern practices and technologies for the collection of a large volume and variety of data, in order to develop a research knowledge base for data mining and analysis in the tourism sector and especially on Cruise and Ship Lines Passengers. Emphasis was given to the application of appropriate methods of data analysis and processing, to produce tangible results for the benefit of sustainable tourism development. Current research focuses on structuring a data warehouse for the collected information in order to apply online analytical processing techniques on the stored data, as well as data mining and data visualization. A holistic approach is proposed, along with a new model for analyzing the impact of tourism activity in general—and cruises in particular—on local society. The results will be utilized as a strategic tool for decision-making by those involved in the tourism sector of cruise areas, with ways to maximize the benefits of tourism, such as increasing overnight stays and, more broadly, passenger consumption, and ways to reduce the environmental impact of visitors and passengers in the ecosystem of cruise areas.

**Keywords:** strategy, tourism, knowledge base, Big Data

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## 1. Introduction

This research sets out to give important and extensive data on the local economy and ecosystem of cruise areas globally, via the “Development of a Strategic Tourism Knowledge Base for Socio-Economic and Environmental Data analytics on Cruise and Ship Lines Passengers”. The objective of this

study is to propose a holistic approach, along with a new model for analyzing the impact of tourism activity in general—and cruises in particular—on local society. This model combines methodologies for examining the economic, social and environmental impacts of tourism activity, whose synthesis is an object of study in the contemporary research. Nonetheless, the research is considered to be innovative in so far as it aims to employ real-time data via social media along with practices taken from Big Data analytics.

Until now, research has focused on the criteria with which cruise companies and travel agencies choose their base ports (Tomigová, Mendes and Pereira, 2016; Wall-Reinius, Ioannides and Zampoukos, 2017) using limited case studies, due to the lack of a database of socio-economic selection criteria of the cruise travelling public. These approaches usually provide limited analysis results, leaving out any reference to the environmental impact of visitors. Given that tourism affects socio-economically and environmentally many sectors of the society and the economy of Piraeus (Apostolopoulos, Leivadi and Yiannakis, 2013), the data that need to be recorded, especially those concerning the critical category of cruise and ship lines passengers, are many and varied. Observations and records of different and detailed data are significant components of a tourist information unit and of modern destinations (Koutsouris 2009; Spilanis and Vayanni, 2014). However, such a large quantity of data has certain characteristics regarding its collection and processing. Information and Communication Technologies (ICT) provide different tools and platforms that may support the dissemination of information to all interested parties of a tourism ecosystem (Chiappa and Baggio 2015; Gretzel et al., 2015). At the same time, the use of a multidimensional data analytics model can enhance the competitiveness and innovation capabilities of a modern tourist destination, through knowledge creation, application and exploitation (Fuchs, Höpken and Lexhagen, 2014).

## 2. The role of Big Data

A large and growing body of literature has focused on the provision of tourism socio-economic and environmental effects at multiple domains, such as the society and the regional development (Apostolopoulos, Leivadi and Yiannakis, 2013; Cupul-Magaña and Rodríguez-Troncoso, 2017). Many longitudinal studies determined tourism results for economic investments, based on an evaluation of the environmental resources of a destination (Ritchie, Crouch, 2000; Cupul-Magaña and Rodríguez-Troncoso, 2017; Graymore, Sipe and Rickson, 2010; Miller, 2001; Nakajima and Ortega, 2016; Papageorgiou and Brotherton, 1999). Other studies refer to the use of a multidimensional data analytics model that may enhance the capacity and competitiveness capabilities of a modern tourist destination, through knowledge creation, application and exploitation (Fuchs, Höpken and Lexhagen, 2014). Observations and records of different and detailed data are significant components of a tourist information unit and of modern destinations. A major theoretical issue that has dominated the field of tourism studies for many years concerns the role of destination development, emphasizing on the requirements of both the environment and the society. Contemporary research often follows holistic approaches, taking into account economic, environmental, social, cultural, institutional and managerial indicators, combining them with national, regional or urban destinations factors (Liu, 2012; Wong, Tang and van Horen, 2006; Zhao et al., 2013). Heterogeneous data analysis is nowadays a trend that is usually part of

Big Data analysis and data mining. Big Data contributes as it adds the 4 “V”s: Volume, Velocity, Variety and Value, from which variety introduces the heterogeneous of the data while volume and velocity are referring to the algorithms and data mining techniques that must be applied in order to get the value out of them. In our research, data are designed to be collected both from automated and manual procedures and are stored in a complex hybrid database structure (SQL and noSQL DBMSs) in order to extract results by directly applying machine learning techniques on them. Considering the relevant research areas deriving from the aforementioned analysis, Srinivasan and Arunasalam (2013) describe Big Data and their potential research directions, while Hu, Wen, Chua and Li (2014) present research guidelines for Big Data systems. Cevher, Becker and Schmidt (2014) present an approach explaining the simplicity of the algorithms that Big Data should have, while Slavakis, Kim, Mateos and Giannakis (2014) discuss fundamental contributions to Big Data theory and practice. An overall presentation of the Big Data analysis major research is presented in: Costa and Santos, 2017.

### **3. Suggested methodology**

This section includes a critical analysis of methodological approaches and suggests a combination of methods that can be used for developing a knowledge base that combines economic, social and environmental data, combined with Big Data analysis. It proposes a new model for approaching primary and secondary data sources like social media for data mining and Big Data analysis. Therefore, the proposed research model is based on the synthesis of suggested methodological approaches presented through the methodology and will be implemented at some future date applied, at a future stage for the collection and analysis of real empirical data. The creation of a Research Knowledge Base for the Collection and Analysis of Socio-Economic and Environmental Data for cruises and ship lines passengers is an innovative research process with regard to the methodological approach as well as the way of organizing, collecting and extracting data through the use of technologies (Miah et al., 2017). In particular, the methodological approach considers holistic exploiting through Multi-Criteria Analysis of the Support Subsystems of Satellite Tourism Accounts and indicators to be mentioned in the tourist ecological footprint (Frechtling, 2010). This hybrid approach and incorporation of indicators of qualitative and quantitative characteristics, as well as environmental parameters, is a modern subject for contemporary research organizations and an effort to reach reliable sustainability indicators. Therefore, data management, its association with secondary sources and data from social media, as well as the analysis and extraction methods described, provide an innovative knowledge base that several international organizations in the field of Tourism seek to develop. The type of data that will be collected and stored in the Tourism Knowledge Base needs to be accurately specified. Therefore, an extensive analysis and description of varied socio-economic and environmental data needs to be conducted. For research purpose, primary and secondary data should be collected. Primary data will arise from basic and supporting subsystems of Tourism Satellite Accounts. A large-scale sample survey is going to be conducted in Cruise and Ship Lines areas, specifically on ship lines passengers and cruise visitors. Conceptual development regarding indicators’ interconnections should be conducted prior to data collection. Concerning the calculation and recording of the

ecological footprint (e.g. CO<sub>2</sub>-eq transmission per square metre or CO<sub>2</sub>-eq per visitor, air pollution, noise pollution and solid waste), secondary data will be acquired from cooperating institutions. Finally, last methodological step is to extract and collect information from Social Media (Aggarwal, 2011), based on a combination of key-words, tagging and location, in order to efficiently collect further information about the area of Piraeus.

Regarding the methodology of data analysis, an innovative approach of basic and supporting subsystems of Tourism Satellite Accounts is designed to be adopted, using basic and supporting subsystems concerning the measurement of the ecological footprint of tourism activity (TEF). According to this method, five dimensions of data are to be analyzed: quantitative (costs, overnight stays, etc.), qualitative (demographics, nationality, cause of travel, accommodation), temporal (time), location (place) and environmental (ecological footprint). Practical association will be attempted between indicators regarding tourism basic products and tourism basic activities, which are used by cruise and ship lines passengers, combining them in an innovative way, with sustainable indicators and ecological footprint indicators (consumption of energy, particulates, etc.), based on primary and secondary sources. The following methodology approach should be compatible with the principles of the World Travel and Tourism Council (WTTC) and Special TSA country reports. Through this methodology the development of a holistic strategic framework will be attempted, which will result in multi-criteria analysis of Tourism Satellite Accounts and indicators of supporting subsystems, regarding the ecological footprint of tourism (Jones and Munday, 2007). As an indication, normalized indicators will be estimated, regarding cruise and ship lines passengers, through indicators such as Foreign Consumption, Balance of Services, Gross Domestic Product, etc. As for the ecological footprint, an estimation of the actual activity of cruise and ship lines passengers transportation will take place, using the model of Touristic Ecological Footprint (TEF), focusing on the category of transportation (Hunter, 2002).

Knowledge mining in metric relations regarding tourism is not considered as a new approach. The idea of posing fuzzy questions on structured databases may give answers that are not associated to simple statistics. This may lead to conclusions related to forecasts (predictive models) or related to data characterization (descriptive model). Although such methods of data analysis are common, a different algorithm/ method of analysis may be used depending on the complexity and particularity of each topic under investigation. From the analysis of Internet Marketing regarding tourism (Olmeda and Sheldon, 2002) to tourism proposals based on cooperative location algorithms (Zheng et al., 2010), knowledge mining has been extensively used for many years in tourism. Based on the techniques of knowledge mining, we will use predictive and descriptive models, in order to analyze the collected data. This technique goes a step further than simple statistic analysis. At the same time, the use of non-relational databases and specialized technologies can provide us with visualized results (Elastic, 2018; Kibana, 2018). Apart from the in-depth analysis of the collected data, we will attempt to analyze data collected from Social Media, where visitors/ tourists are free to express their views and share their tourism experiences (Xiang and Gretzel, 2010). Using the above technique, the analysis of data will be able to extract knowledge about tourist views on locations. Despite the fact that the velocity of the expected data is not considered to be very high, still, procedures of knowledge management will be followed.



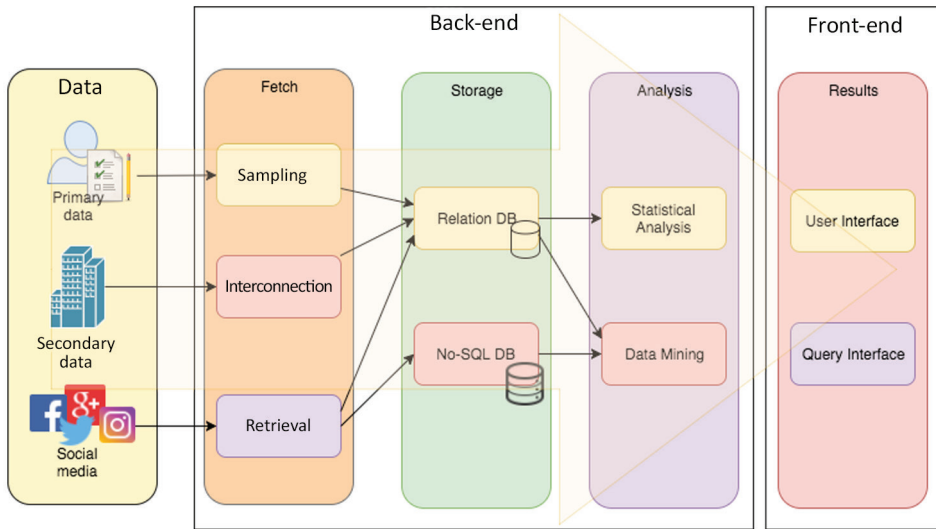


Figure 1. Knowledge base architecture

Source: Research team processing.

The creation of a Research Knowledge Base of Socio-Economic and Environmental Data, for the cruises and ship lines passengers, provides dynamic and timely research results regarding the social and economic impact of cruises and ship lines passengers, in relation to the environmental impact they bring. The Development of a Strategic Tourism Knowledge Base for Socio-Economic and Environmental Data analytics on Cruise and Ship Lines Passengers provides an important scientific contribution to the country’s research effort to create reliable measurement systems, in the form of Satellite Tourism Accounts (Smeral, 2006). Furthermore, it will provide an advanced methodology addressing the sustainable development of destinations and the mapping and combination of quantitative, qualitative, social and environmental indicators. Consequently, the research results, the developed infrastructure and the acquired know-how will have a significant economic and social impact in the wider cruise areas.

#### 4. Conclusion

The proposed research model will provide answers to questions regarding the exploitation of the large volume of visitors who enter the area of cruise marinas, such as how far much overnight stays and tourist consumption increase and social and environmental impacts decrease. In addition, the Information System and the Multicriteria Analysis of Socio-Economic and Environmental Data model will provide a research tool for collecting, creating, and organizing social, economic and environmental data that can be applied and adapted to other destinations, even across the territory, laying the foundations for a Sustainable Tourism Observatory at a national level. The dynamic and continuous results of the research will provide an important tool for strategy development and taking of critical decisions making in

the economy hosting the cruise. The research model in question sheds light not only on the complex nature issue of the impact on the three levels under examination (economic, social, environmental), but also on how the use of Big Data analysis can contribute to both real-time data and new approaches. The current model will be the object of future research at a passenger cruise marina, in which the impacts will be measured in combination employing the logic of a data warehouse through the use of Big Data analytics.

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## Strategiczna baza danych społeczno-ekonomicznych i środowiskowych w turystyce – rola analizy zbiorów typu Big Data

**Abstrakt:** W artykule przedstawiono zastosowanie nowoczesnych narzędzi i technologii umożliwiających gromadzenie dużej ilości różnorodnych danych w celu tworzenia ich zbiorów, pozwalających na eksplorację i analizę naukową danych dotyczących sektora usług turystycz-

nych, a zwłaszcza problemów linii i statków wycieczkowych oraz ich pasażerów. Szczególny nacisk położono na zastosowanie odpowiednich metod analizy i przetwarzania danych do uzyskiwania konkretnych wyników, które będą wspierać zrównoważony rozwój turystyki. Przepro-

wadzone badania koncentrują się na architekturze hurtowni danych, w których gromadzone są pozyskane informacje, umożliwiające analityczne przetwarzanie zgromadzonych danych (OLAP), a także analizę zestawów danych (data mining) i ich wizualizację. Wyniki badań zostaną wykorzystane jako strategiczne narzędzie podejmowania decyzji

w sektorze usług turystycznych, w szczególności w obszarze dotyczącym rejsów wycieczkowych, oraz maksymalizacji korzyści, takich jak zwiększenie liczby noclegów i szerzej – konsumpcji pasażerów, umożliwią także zmniejszenie wpływu odwiedzających i pasażerów statków wycieczkowych na ekosystemy odwiedzanych obszarów.

**Słowa kluczowe:** strategia, turystyka, bazy wiedzy, Big Data

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# MANAGEMENT AND QUALITY



# An analysis of mechanisms of corporate governance in companies with the Treasury shareholding as seen in the example of companies of the energy sector listed on the Warsaw Stock Exchange

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**Abstract:** Corporate governance covers with its scope a set of internal and external mechanisms forming the system of supervision and control in a company. In an economy based on market mechanisms private companies dominate over companies in which the State Treasury has shares. Companies with Treasury shareholding still play a significant role in the economy in Poland. Thus, the paper points to the principles of operation of mechanisms of corporate governance in companies with Treasury shareholding. The purpose of the paper is to analyze mechanisms of corporate governance applied in energy companies with Treasury shareholding, as well as to establish whether the supervision and control instruments used were convergent. The research was carried out on the basis of companies within the energy sector, which in terms of the number of companies as well as market value was dominated by companies with Treasury shareholding. On the basis of statutes of companies with Treasury shareholding the applied mechanisms of corporate governance are compiled in a table set-up. The conducted research shows that in companies with Treasury shareholding the role of external mechanisms in the company supervision and control system was significantly limited, whereas corporate governance was implemented mainly by means of internal mechanisms. Moreover, the scope of corporate control in companies with Treasury shareholding was much greater than that resulting from the ownership structure.

**Keywords:** corporate governance, company, companies with Treasury shareholding

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## 1. Introduction

The subject matter of corporate governance is complex and among its many issues a special place is held by the separation of the ownership function from management. Undoubtedly, a company (corporation) is a subject of interest of corporate governance. Its contemporary image is shaped by managers who are responsible for making development-related decisions and owners providing capital necessary to carry out economic activity. The observed separation of ownership from manage-

ment in a modern company in practice means that owners do not get involved directly in managing an economic entity, thus they do not take management roles but hire managers to act in this function. At the same time, separation of the function of a company owner from management functions leads to a situation where managers do not always pursue objectives convergent with those that the owners would expect, which brings conflicts of interest between owners and managers.

The subject matter of corporate governance addressed in the literature concerns primarily private companies. This seems reasonable as in the market economy private companies are a dominant form of carrying out economic activity. Next to companies classified to the private sector, economic entities in which the State kept its shares fully or partially due to the company's belonging to a strategic sector of the economy or due to protection of state's economic interests also function in the national economy. Given that the targets and principles of operation of companies with Treasury shareholding may differ significantly from the targets and principles of operation of private companies the paper points to mechanisms of corporate governance in companies in which the State had its shares.

The purpose of the paper is to analyze mechanisms of corporate governance applied in energy companies with Treasury shareholding, as well as to establish whether the supervision and control instruments used in such companies were convergent. The research was performed on the basis of public companies listed on the Warsaw Stock Exchange representing the energy sector. In the pursuit of the adopted aim a critical analysis of the literature was employed, as well as the analysis of documents regulating corporate governance in companies with Treasury shareholding.

## 2. Basic theoretical aspects of corporate governance

The term *corporate governance* is interpreted in various ways. In the foreign literature, it does not have a single universal definition, whereas various proposals of explaining the meaning of this notion result primarily from the adopted purpose of the operation of a company, the developed legal system or the functioning good practices.

The growing role of corporate governance in modern companies results from the existing and often difficult to reconcile conflicts of interests stemming from the separation of the function of management from ownership. One needs to mention the agency theory here which is a theoretical introduction to explaining assumptions of corporate governance. The agency theory describes the agent–principal relationship, which provides that the owner, the capital provider (principal), mandates the conduct of their affairs to a hired person—a manager (agent). The agency problem underlies the agency theory which arises on the principal–agent line, which in turn results from three fundamental reasons: information asymmetry, that is an incomplete set of information the principal and the agent have, divergence of objectives of the principal and the agent, and the principal's and the agent's different approach to risk (Dobija and Kołodkiewicz, 2011, p. 23). As rightly emphasized by Olga Bogacz-Miętka, according to the agency theory “the task of corporate governance is to discipline the company's management in such a way that they act in agreement with the shareholders' interest” (2012, p. 20). In reference to the outlined problem, attempting to specify what corporate governance



is, one can point out that it is “a set of processes, customs, policies, laws, and institutions that affect the way a corporation is directed, administered or controlled” (Baker and Powell, 2009, p. 84). Such a broad approach to the problem comprises the question of the choice of mechanisms for managing a corporation in order to ensure benefits to the shareholders and responsibility under which managers report to shareholders. The term *corporate governance* is also identified with “the process of supervision and control intended to ensure that the company’s management acts in accordance with the interests of shareholders” (Parkinson, 1993, p. 159) and also an “integrated set of internal and external controls that harmonize manager–shareholder (agency) conflicts of interest resulting from the separation of ownership and control” (Baysinger and Hoskisson, 1990, p. 72). From the point of view of the essence of the problem, it is worth quoting a definition of corporate governance by the Organisation for Economic Co-operation and Development (OECD) which points out that corporate governance is a set of relationships between a company’s management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means for attaining those objectives and monitoring performance are determined (OECD, 2004). Analyzing the presented selected examples of the definition of corporate governance one needs to note that they emphasize different problems related to corporate governance in a company, but their points of view are not contradictory. Thus, one can see i.a. the problem of supervision and control, selection of supervision tools or relationship between the shareholders (and more broadly stakeholders) and the managing staff (managers). Assuming that corporate governance is a system of principles, practices and processes thanks to which it is possible to ensure an appropriate relationship between the company and various groups of stakeholders, the framework of corporate governance may be brought down to three main issues which include (Business Dictionary, 2019):

- 1) “explicit and implicit contracts between the company and the stakeholders for distribution of responsibilities, rights, and rewards;
- 2) procedures for reconciling the sometimes conflicting interests of stakeholders in accordance with their duties, privileges, and roles;
- 3) procedures for proper supervision, control, and information-flows to serve as a system of checks-and-balances”.

On the ground of national literature, defining this term is hindered by terminological problems associated with translating the English term *corporate governance* into the Polish language. And so, the term *corporate governance* was introduced by Bogdan Wawrzyniak according to whom it covers principles, rules and other methods of procedure which serve owners’ control over economic organizations subordinate to them (Wawrzyniak, 2000a, p. 52). According to Krzysztof Zalega, corporate governance means “a system encompassing various legal and economic institutions (including formal and informal rules of operation), the essence of which is to ensure agreement and balance between the interests of all stakeholders involved in the operation of the corporation (investors, managers, employees, suppliers) in a way that guarantees increased company value and its development” (Zalega, 2003, p. 9). The term *corporate governance* in Polish literature is also translated as a “set of legal and factual activities carried out by the capital owner towards an entity under their control and its organs” (Mesjasz, 1998, p. 11). Similarly, *corporate governance* in the meaning of *corporate power*

is used by Jan Krzysztof Solarz, who believes that this term focuses on “the relationship of actual power between the company’s bodies, its suppliers and customers, employees and shareholders and external sources of financial inflows” (1997, p. 91). Sometimes the term *corporate governance* is identified with enforcing ownership rights by formal representatives who sit on supervisory boards thus referring only to the relationship between owners and managers (Lis and Sterniczuk, 2005, p. 30). However, the literature features quite a common belief that such an understanding of corporate governance is not legitimate since such an approach leaves out other groups of stakeholders who, firstly, are interested in results of the activity, and secondly, affect the creation of the company’s value. Taking into account the quoted examples of explanations of the term *corporate governance*, one of the most capacious definitions may be presented by Maria Aluchna, according to which *corporate governance* means “a set of mechanisms specifying the interconnections and relationships defining the rights, obligations and requirements among individual participants involved in the company’s operation” (2007, p. 16). Such an approach in the definition allows one to look at corporate governance in the context of supervisory relation or structure, which makes it possible to monitor, control and supervise the company’s operation and to protect the interests of various groups of stakeholders, including the State Treasury.

Various models (types) of corporate governance may be found in the literature.<sup>1</sup> The basic models include a one-tier (monistic) model and a two-tier (dualistic) model (Dobija and Kołodkiewicz, 2011, p. 25). The identified models differ primarily in the way the competences and responsibilities of ownership- and management-related organs are distributed. Thus, the one-tier model characteristic to English heritage countries assumes the existence of the board of directors (along shareholders) composed of internal directors, the so-called executive directors, and external directors, the so-called non-executive directors. In this model the board of directors performs executive and control functions in parallel, which means that this body supervises managers’ activity on the one hand, and on the other takes executive decisions. In the two-tier model the control functions attributed to the supervisory board are separated from the decision-making functions lying with the management board appointed to conduct the company’s affairs and to represent it. Thus, the two-tier model refers to the classic set-up functioning in a company: shareholders, the supervisory board and the management board (Bogacz-Miętka, 2012, pp. 67–68).

Another issue of interest to corporate governance involves mechanisms of control and supervision over the company which Igor Postuła describes as instruments that “allow prevention of conflicts between different actors involved in a corporation or mitigating them” (2013, p. 222). Two categories of mechanisms of corporate governance are most often identified, that is economic (so-called market, external, on the markets on which the company may operate) and legal and organizational (so-called non-market, internal, established by the company itself) (Dobija and Kołodkiewicz, 2011, p. 25; Urban, 2019, p. 2; Asensio-López, Cabeza-García and González-Álvarez, 2018, p. 266). External mechanisms of corporate governance are based on a disciplining and motivating effect of market forces on persons managing the company (Oplustil, 2010, p. 11). Thus economic mechanisms of corporate governance are as-

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<sup>1</sup> Different types of models of corporate governance may be found i.a. in: Urbanek, 2005, p. 67; Wawrzyniak, 2000b, pp. 21–25.

sociated with the activity of the corporation's external environment, mainly the capital market, including mergers and acquisitions, the managerial talent market and the product market (Zalega, 2003, p. 132; Aluchna, 2007, pp. 186–190). The capital market, by means of the market mechanism of determining the market price, allows subjecting the activity of managers to effective control, where the role of this mechanism increases with ownership distribution. In turn, the market of managerial talents constitutes a reference point and a verification of presented skills of the managing staff, whereas the product market means that a loss of a company's competitiveness entails decreasing the market share or even bankruptcy, which forces managers to effective work in order to protect the company against it. Internal mechanisms of corporate governance refer to the “supervisor–supervised legal relationship from which the latter's obligation to undergo an authority-involving (corrective) interference of the supervising actor results” (Dobija and Kołodkiewicz, 2011, p. 9). Among the tools included in the legal and organizational group the main place is taken by the supervisory board (Kuciński, 2013, p. 229; Mackiewicz, 2015, p. 164), whose task is to carry out direct supervision over the body responsible for managing the company. Apart from this, internal instruments of corporate governance include: company law, including the statute of a company, code of good practices, ownership structure, debt structure, internal control and internal audit (Dobija and Kołodkiewicz, 2011, p. 25). One can also encounter a different classification of mechanisms of corporate governance in the literature, which identifies supervisory mechanisms and motivational mechanisms (Aluchna, 2015, p. 24). Supervisory mechanisms include internal mechanisms (e.g. ownership structure, supervisory board, internal audit) and external mechanisms (e.g. legal regulations, capital market, managerial talent market, debt market, product market, etc.). Motivational mechanisms refer in particular to the question of remunerating managers, in particular tools linking managers' pay with performance (e.g. management options schemes) (Miązek, 2018, pp. 296–301).

### 3. Research methodology

The paper's research part addresses corporate governance in companies with Treasury shareholding. A company fully-owned by the State Treasury is assumed to be such a form of business activity which emerged after transforming a state-owned company into a commercial law company. Thus the research covers companies which as a result of ownership transformations of state operators (privatization processes) became public capital companies listed on the Warsaw Stock Exchange in which the State Treasury kept shareholding.

In an economy based on market mechanisms private companies dominate over companies in which the State Treasury had shareholding.<sup>2</sup> As much as the number of companies on the Warsaw Stock Exchange in which the State Treasury had direct or indirect shares in the share capital was relatively small with regard to the listed companies<sup>3</sup>, comparing the market value of companies with Treasury shareholding to the capitalization of all national companies—it

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<sup>2</sup> Based on the data of Statistics Poland concerning monthly information on national economy operators in the REGON register, October 2019, the total number of national economy operators was 4,520,965, including 111,839 in the public sector.

<sup>3</sup> At the end of 2018 the State Treasury was a shareholder in 24 companies which amounted to 5.8% of all national companies listed on the WSE main market.

was disproportionately great.<sup>4</sup> This determined focusing the research on companies in which the State Treasury had shareholding.

In the next year it was decided to narrow down the research to companies of the energy sector. This sector was dominated both in terms of quantity and capitalization by companies in which the State had its shares. At the end of 2018 the energy sector was represented by 12 companies—9 of national origin and 3 of foreign origin. Next, limiting the research solely to national companies, in the identified group of 9 companies the State Treasury had its shares in 5 of them. These were: Elektrociepłownia Będzin, Enea, Energa, PGE, and Tauron.

Table 1. Characteristics of companies in the energy sector with State Treasury shareholding listed on the Warsaw Stock Exchange (as at 31 December, 2018)

No.	Company name	Participation of State Treasury in the share capital	Number of shareholders at least 5% of the votes	Free float	Company capitalization (in million PLN)
1.	Elektrociepłownia Będzin	5.00%	7	22.50%	67.08
2.	Enea	51.50%	1	48.50%	4,370.28
3.	Energa	51.52%	1	48.48%	3,689.34
4.	PGE	57,39%	1	42.61%	18,697.61
5.	Tauron	30.06%	3	54.49%	3,838.08

Source: Author's own elaboration based on the issuers' websites.

The information compiled in Table 1 shows that the State Treasury had shares at the level of 50% and above in the share capital of three companies: Enea, Energa and PGE. For these companies the State Treasury was a single shareholder in a group of shareholders whose shares exceeded the threshold of 5% of votes in the general assembly. The other investigated companies fully-owned by the State Treasury showed shares at below 50%. In Tauron the State Treasury effectively controlled the company's operation thanks to combined forces. Direct shares of the State Treasury in the company together with indirect shares (through a company controlled by the State Treasury) totalled 45.45% of shares in the company's share capital. In turn, the level of State Treasury involvement in Elektrociepłownia Będzin was so low (share of 5%) that it did not allow it to control and influence the directions of managing the activity of the economic entity. At the end of 2018 Elektrociepłownia Będzin had 7 shareholders holding at least 5% of votes. Assessing the investigated companies through the lens of capitalization one can note that PGE demonstrated the greatest market value at the end of 2018 (18.7 billion PLN) while Elektrociepłownia Będzin the poorest (67 million PLN). Other companies had a similar market value hovering at 3.7–4.4 billion PLN.

<sup>4</sup> The share of companies fully-owned by the State Treasury in 2018 in the total capitalization of national companies was 50.48%.

In the last stage of the research a compilation in a table form of applied mechanisms of corporate governance was made, which were then analyzed and evaluation was carried out to see whether the tools applied in companies with Treasury shareholding of the energy sector were convergent.

#### **4. Analysis and assessment of mechanisms of corporate governance applied in energy sector companies with Treasury shareholding listed on the Warsaw Stock Exchange**

Corporate governance in companies with Treasury shareholding covers a set of internal and external mechanisms allowing the supervision and control of the operation of companies in which the State has its shares. Due to certain distinctive features of companies fully-owned by the State Treasury and private companies the role of the impact of external mechanisms is limited. The managerial talent market serves as an example here, which for companies fully-owned by the State Treasury does not function at all, actually, due to adopted legal regulations introducing statutory limitations on the amount of remuneration for managers of State companies.<sup>5</sup> In companies with Treasury shareholding a special role is played by internal mechanisms, which allow corporate control in a company ensuring the State's influence over the most important decisions concerning primarily the appointment and dismissal of members of the company's bodies or division of profits.

The ownership structure, and in particular the degree of its concentration, determines to what extent and by whom the supervision and control over the company's operation is performed. What is more, the degree of ownership dispersion determines the force of executing one's rights and impacting the operation of the company. Corporate control may be obtained by concentration of shares where one share is assigned one vote or by concentration of votes in the case of existence of preference shares with special voting rights. In the group of investigated companies, the State Treasury had shares allowing capital control in Enea, Energa and PGE. Its shares in each of these companies amounted to above 50% in the share capital. In the case of Energa, additionally thanks to the existence of preference shares with special voting rights, the impact of the State Treasury at the general assembly was increased. For Tauron and Elektrociepłownia Będzin, the State Treasury had shares at a level below 50% in the share capital, where for the former the State was able to control the company's operation thanks to a company subsidiary to the State Treasury, in the latter the shares held by the State Treasury combined with the developed ownership structure in the company did not allow control over it. One can generally conclude that for companies of the energy sector in which the State Treasury had shares, a concentrated ownership structure dominated, one which would ensure the State's control over the operation of the companies. This does not concern Elektrociepłownia Będzin in an obvious way where the State Treasury did not have sufficient shares to allow it to influence its activity.

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<sup>5</sup> Notice of the Marshal of the Sejm of the Republic of Poland of 14 October 2019 on announcing the consolidated text of the act on remuneration of persons managing certain legal entities, Dz.U. (Journal of Laws) 2019, item 2136.

In companies with Treasury shareholding it was a fairly common practice to introduce to the statutes provisions regulating the principles of functioning of basic company bodies, that is the general assembly, the supervisory board or the management board.

In this way the State Treasury, most frequently in reference to the general assembly, limited the right to execute a vote by shareholders with shares at above 10% of the total number of votes in a company. What is more, companies' statutes included additional provisions which showed that a shareholder who did not meet the requirement of informing about the number of votes held above a certain threshold could execute their right to vote only from one share. In an obvious way these limitations did not apply to the State Treasury and other operators associated with it. Apart from that, in matters fundamental to the company, that is for instance dissolution, transformation or merger of a company, giving preference to a share or lowering the company's capital, resolutions of the general assembly could be adopted provided a specified size of the share capital was represented and/ or a qualified number of votes was cast. In this way key decisions concerning the functioning of the company could not be made without participation of the State Treasury. The essential role of the general assembly in the system of corporate governance could be evidenced by personal entitlements for the State Treasury concerning the manner and mode of convening it and placing matters on the agenda.

In the system of corporate governance the supervisory board is the main component of the organization's control system. The State Treasury, having shares that allow capital control over companies, gained statutory rights allowing free shaping of the composition of the supervisory board. Thus, the State Treasury, holding personal entitlements, was able to appoint most of the composition of the supervisory board. Among special solutions in terms of shaping the supervisory board one needs to quote the privilege of appointing and dismissing members of the Supervisory Board by a written statement from the State Treasury submitted to the management board or the possibility to appoint a person who will hold the function of the President of the Supervisory Board.

In statutes of companies controlled by the State Treasury there were in fact no provisions regulating the principles of functioning of the management board. However, in so far as formally the statute did not include specific entitlements interfering in the principles of appointing the management board, by subjugating the supervisory board the State Treasury ensured it had significant influence on the composition of the company's management board. The fact that before the appointment of members of supervisory bodies candidates are assessed by the Council for companies with Treasury shareholding and state legal persons can be considered a good practice. In turn, frequent changes in the composition of management boards, which may negatively affect companies' operation, may be considered a bad practice. Energa may be given as an example here, where changes in the post of the President of the company have been made a few times in the last four years.

The reflections concern companies in which the State Treasury had shares allowing it to control their operations. Thus, in Enea, Energa, PGE and Tauron similar mechanisms of corporate governance function, yet solutions leading to the same objective differ from one another. In the case of Elektrociepłownia Będzin there are mechanisms of supervision which in no way privilege the State Treasury. Thus, instruments of corporate governance include a group of standard solutions accompanying private companies, which are based on the provisions of the Commercial Code.

Table 2. Corporate governance mechanisms in companies with State Treasury shareholding in the energy sector listed on the WSE

Company name	Corporate governance mechanisms
Elektrociepłownia Będzin	<ul style="list-style-type: none"> <li>– the State Treasury holds minority shares (5% share), which together with BGK's shares do not allow it to control the company, while the number of shareholders whose shares in the share capital were above the 5% threshold was 7</li> <li>– the composition of the Supervisory Board consists of 5 people, the company statute provides for a composition of 5–6 people</li> </ul>
Enea	<ul style="list-style-type: none"> <li>– the State Treasury's majority shareholding in the share capital (51.50% share), at the same time the State Treasury was the only shareholder whose shares in the share capital were above the 5% threshold</li> <li>– the composition of the Supervisory Board consists of 9 persons, the company's statute provides for a composition of 6–15 members</li> <li>– the individual right of the State Treasury to appoint and recall one Supervisory Board member by a written statement submitted to the Company's Management Board, this right of the State Treasury does not prevent it from participating in electing other Supervisory Board members and nominating Supervisory Board candidates</li> <li>– State Treasury's right to elect the Chairman of the Supervisory Board</li> <li>– the Supervisory Board should be as a minimum composed of one person meeting the independence criteria</li> <li>– the individual right of the State Treasury to request that an Extraordinary Shareholders' Meeting be convened, or that certain matters be included in the agenda of the next General Shareholders' Meeting on the basis of a request submitted to the Management Board in writing</li> <li>– resolutions of the General Meeting of Shareholders concerning among others: dissolution of the company, relocating the company's registered office overseas, the company's shares obtaining preferred status. Resolutions may be adopted if at least half of the company's share capital is represented and they require a four-fifths majority of votes if the State Treasury is no longer holding more than 50% of the share capital</li> </ul>
Energia	<ul style="list-style-type: none"> <li>– the State Treasury's majority shareholding in the share capital (51.52% share), at the same time the State Treasury was the only shareholder whose shares in the share capital were above the 5% threshold</li> <li>– the existence of preference shares with voting rights, which increase the number of State Treasury votes at the General Shareholders' Meeting to 64,09%</li> <li>– the composition of the Supervisory Board consists of 6 people, the company's statute provides for a composition of 5–12 members</li> <li>– individual right of the State Treasury (shareholder representing the highest share in the company's share capital) to appoint and dismiss members of the Supervisory Board in the case of an even number of members of the Supervisory Board in the number of half of its members plus one member of the Supervisory Board</li> <li>– appointment and dismissal of the Supervisory Board members by way of a written statement of the State Treasury</li> <li>– individual right of the State Treasury to appoint a person from among the members of the Supervisory Board who will act as the Chairman of the Supervisory Board</li> <li>– the Supervisory Board should be as a minimum composed of two persons meeting the independence criteria</li> <li>– the right to convene a General Meeting of Shareholders on the basis of a written request from the State Treasury</li> <li>– the voting right of shareholders shall be limited in such manner that at the General Meeting, none of them may exercise more than 10% of the total number of votes existing in the Company as at the date of holding the General Meeting</li> </ul>

PGE	<ul style="list-style-type: none"> <li>– the State Treasury’s majority shareholding in the share capital (57.39% share), at the same time the State Treasury was the only shareholder whose shares in the share capital were above the 5% threshold</li> <li>– the composition of the Supervisory Board consists of 8 people, the company statute provides for a composition of 5–9 members</li> <li>– the individual right of the State Treasury to electing at least half of the members of the Supervisory Board, appointed by the General Meeting</li> <li>– the State Treasury’s right to appoint and dismiss one member of the Supervisory Board by way of a written declaration submitted to the Management Board</li> <li>– the individual right of the State Treasury to designate persons from among whom the Chairman of the Supervisory Board will be elected</li> <li>– the Supervisory Board should be as a minimum composed of one person meeting the independence criteria</li> <li>– the right to convene a General Meeting of Shareholders on the basis of a written request from the State Treasury</li> <li>– the voting right of shareholders shall be limited in such manner that at the General Meeting none of them may exercise more than 10% of the total number of votes existing in the Company as at the date of holding the General Meeting</li> <li>– the resolutions of the General Meeting of Shareholders concerning, among others, preferential status of shares or a merger of the Company by way of a transfer of all its assets to another company or a merger by way of an establishment or another company, a dissolution of the Company, its liquidation, require a majority of 90% of all votes cast</li> </ul>
Tauron	<ul style="list-style-type: none"> <li>– direct shares of the Treasury in the share capital amounted to 30.06%, together with the subsidiary 40.45%, i.e. below the level of 50%, at the same time the number of shareholders whose shares in the share capital were above the 5% threshold was 3</li> <li>– the composition of the Supervisory Board consists of 8 people, the company statute provides for a composition of 5–9 members</li> <li>– the Supervisory Board should be as a minimum composed of two persons meeting the independence criteria</li> <li>– in the period in which the State Treasury, together with subsidiaries of the State Treasury, possesses a number of company’s shares entitling to perform at least 25% of the total votes in the Company, the State Treasury is entitled to appoint and dismiss members of the Supervisory Board, in the amount equalling half of the maximum number of the composition of the Supervisory Board defined in the Articles of Association increased by 1</li> <li>– appointment and dismissal of members of the Supervisory Board by the State Treasury takes place by way of a statement submitted to the company</li> <li>– the right of vote of shareholders having over 10% of the total votes in the company is limited in the way that none of them shall perform at the General Meeting more than 10% of the total of votes in the company</li> <li>– the resolutions with respect to significant changes in the scope of the company’s activity shall be adopted by the General Meeting with the majority of two-thirds of the votes in the presence of persons representing at least half of the share capital</li> </ul>

Source: Author’s own elaboration based on uniform texts of the statutes of the surveyed companies.



## 5. Conclusion

At the moment, supervision of companies with Treasury shareholding is carried out by the newly established Ministry of State Assets. One needs to hope that together with its creation a new model of corporate governance will be developed, whose fundamentals will be built on the basis of best market practices and company law.

The analysis of mechanisms of corporate governance in selected companies with Treasury shareholding shows that concentration of shares in the hands of one shareholder limits the significance of external mechanisms in supervision and control of a company. In turn the status of a dominant investor allowed in the majority of analyzed cases (except for Elektrociepłownia Będzin) full supervision and control of companies by means of internal mechanisms.

Assessing the role and meaning of individual internal mechanisms in the system of corporate governance in companies fully-owned by the State Treasury, one needs to emphasize the special role of statutory provisions which equipped the State with special entitlements or privileges. The question of unequal treatment of all shareholders is mostly noticeable, which results primarily from adopted solutions in terms of the voting rules and adopted procedures at general assemblies. One can present as an example here the restriction of the right to execute voting rights by shareholders with shares at above 10% of the total number of votes in the company. What is more, the State Treasury had special rights which allowed it to shape the composition of the supervisory board to a great extent. In practice it means limitation of representativeness of the supervisory board to representatives of the State Treasury. It needs to be noted here that the right to execute ownership rights of the State Treasury according to the rule of proportionality of capital and the majority rule is not contested here, but only whether treatment of the State in a special way is necessary. The presented analysis of mechanisms encourages a search for optimal solutions which are a basis for building an effective system of corporate governance in companies with Treasury shareholding.

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## **Analiza mechanizmów nadzoru korporacyjnego w spółkach z udziałem Skarbu Państwa na przykładzie spółek z sektora energia notowanych na GPW w Warszawie**

**Abstrakt:** Nadzór korporacyjny obejmuje swym zakresem zbiór zewnętrznych i wewnętrznych mechanizmów składających się na system nadzoru i kontroli w przedsiębiorstwie. W gospodarce opartej na mechanizmach rynkowych przedsiębiorstwa prywatne dominują nad przedsiębiorstwami, w których udziały posiada Skarb Państwa. W Polsce przedsiębiorstwa z udziałem Skarbu Państwa nadal odgrywają istotną rolę w gospodarce. Tym samym w artykule zwrócono uwagę na zasady funkcjonowania mechanizmów nadzoru korporacyjnego w spółkach z udziałem Skarbu Państwa. Celem artykułu była analiza mechanizmów nadzoru korporacyjnego stosowanych w spółkach energetycznych z udziałem Skarbu Państwa, a także ustalenie tego, czy wykorzystywane instrumenty nadzoru i kontroli były ze sobą

zbieżne. Badania przeprowadzono na podstawie spółek należących do sektora energia, który pod względem ilości spółek, jak i wartości rynkowej był zdominowany przez przedsiębiorstwa z udziałem Skarbu Państwa. Na podstawie statutów spółek z udziałem Skarbu Państwa zestawiono w układzie tabelarycznym stosowane mechanizmy nadzoru korporacyjnego. Z przeprowadzonych badań wynika, iż w spółkach z udziałem Skarbu Państwa rola mechanizmów zewnętrznych w systemie nadzoru i kontroli przedsiębiorstwa była znacząco ograniczona, zaś nadzór korporacyjny był realizowany głównie za pomocą mechanizmów wewnętrznych. Ponadto zakres kontroli korporacyjnej w spółkach z udziałem Skarbu Państwa był znacznie większy, niż wynikało to ze struktury własności.

**Słowa kluczowe:** nadzór korporacyjny, przedsiębiorstwo, spółka z udziałem Skarbu Państwa



# Human resource risk assessment in selected hotels in the West Pomeranian Voivodeship

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**Abstract:** The objective of the article is to assess human resource risk in selected hotels. A theoretical part of the study is a result of the use of the desk research method. An empirical part includes the results of interviews with human resource managers conducted in five hotels located in the West Pomeranian Voivodeship and the assessment of the human resource risk level in the analyzed hotels. Respondents assessed two elements: the probability of occurring risk events and their impact on a hotel. The human resource risk level is a product of these two parameters expressed in points. Due to a limited number of research entities, the article involves the analysis of the case study. Therefore, the research findings cannot be generalized with regard to the whole industry. However, they can serve as the basis for a discussion on the phenomenon of human resource risk in the hotel industry and its impact on work efficiency, thus the functioning of the whole organization.

**Keywords:** risk, human resources, personnel, hotel

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## 1. Introduction

A paradigm shift currently taking place in management, which involves valuing employees' knowledge and commitment as key factors of the market success, results in attaching greater importance to human capital in the structure of hotel resources which is defined as the stock of knowledge, skills, health and motivation to work which people possess.

In literature on the subject (Barro 2001; Becker 2002; Becker 2009), there are at least two key features of human capital emphasized. Firstly, it is characterized by non-transferable property rights which means that through an employment agreement an employer acquires solely a right to use employee's skills in a given manner, but they do not become their owners. Secondly, human resources differ from the other factors of production in terms of the fact that they can become an unreliable element of a company, especially when they are not properly

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managed. People managing these resources should accept human diversity and simultaneously develop conditions enabling employees to use their abilities for the benefit of a company.

The special role of human resources in the hotel industry stems from dominating significance of an intangible element (service) in the structure of a hotel company product. A functional nature of a service causes that the behaviour and aptitudes of employees serving customers have a great impact on the usability of a final product as the personnel taking part in the process of providing services are perceived as its integral part.

On the one hand, hiring employees determines achieving hotel company's goals and its market position, but on the other hand it is a source of risk which may undermine the market position of a hotel company caused by inappropriate employees' attitudes and behaviours, and result in the provision of a product of quality that does not meet customer expectations. The inappropriate behaviour of incompetent and demotivated personnel can negatively affect the functioning of a hotel company and the profit levels.

The objective of the article is to assess human resource risk in selected hotels. For the purpose of the study, the following research hypothesis was formulated:

The method of human resource management (especially in terms of motivating) determines the level of human resource risk in a hotel company.

The article is the result of literature studies and empirical research conducted in five hotels in the West Pomeranian Voivodeship.

The reason for an attempt to assess human resource risk in hotels in this article is the fact that the issue has been scarcely discussed in the literature on the subject. There are numerous publications dealing with the problem of human resource management in service companies or general issues connected with risk management. However, there are very few studies combining these two fields and addressing problems connected with human resources as a source of risk in an organization. The review of articles published since 2000 in a wide range of high-quality management journals shows that limited research was conducted in terms of the perspective of risk management with regard to human resources (Becker and Smidt, 2016). In terms of the presented approach, the issues of human resource risk in the hotel industry discussed in the article have not been subject to a scientific discussion in Polish and foreign literature. This article supplements a theoretical gap in terms of analyzing relations between human resource management and human resource risk. The article also fills out an empirical gap stemming from the poor recognition of human resource risk in service companies, especially from the hotel industry.

## 2. Risk essence

Risk is a common phenomenon under market economy conditions. It is an inherent property of any decisions made by a human.

The analysis of the literature on the subject clearly indicates the coexistence of many parallel interpretations of risk. A scientific discussion focuses on relations between risk and such terms as uncertainty, probability of events, threats, above-average benefits. The way of perceiving risk has been changing over time. It is clearly noticeable that the first considerations about the nature of risk within the field of economics focused on the comparison of colloquial and scientific terms of risk and uncertainty as well as their significance in the context of

probability theory. They constituted works by pioneers which were polemical and definitely incomplete, however, they paved the way for further development of knowledge about risk in economics (Urbanowska-Sojkin, 2013).

In the neoclassical trend of the analysis of risk connected with the functioning of a company, a fundamental category around which considerations about risk focused was profit (Knight, 1921; Modigliani and Miller, 1958). Given the fact that in the conditions of uncertainty a profit is a variable, two following principles of defining risk were adopted in research:

- the operations of a company are governed by the value of possible profit fluctuations;
- the operations of a company are governed by the value of expected profits.

In the event of the existence of two possible investment options producing the same expected profit according to projections, an entrepreneur chooses that investment option in which the expected profit fluctuation is lower.

The next group of risk researchers (defensive trend) consider it only as a negative phenomenon, as the possibility of a loss. The main representatives of this trend are German economists: F. Philipp and W. Mellwig. The first describes risk as “the possibility of making a wrong decision” (Philipp, 1967). According to W. Mellwig, risk is “danger of achieving an adverse effect” (1972).

Summing up the above considerations, it should be claimed that from the point of view of effects two approaches to risk can be distinguished. The negative concept interprets risk as the possibility of failure to achieve expected effects, therefore, risk is associated with a set of negative terms such as *threat*, *loss*, *danger*, *damage*.

The second concept—neutral one—is based on the assumption that risk is neither a positive nor negative phenomenon. It mainly approaches risk as a state of uncertainty about future effects of particular events. Their result is better or worse than expected, therefore, risk in some situations is an opportunity and in others it is a threat. As part of the neutral approach, risk is also interpreted as the possibility of achieving an effect other than intended (expected), however, without assessing whether this effect will be positive or negative (Jajuga, 2008).

Over the centuries of development of societies, the approach to risk has also evolved: from identifying it with fate, a merciless force determining the course of events, to perceiving it as a phenomenon which may be recognized, measured, managed and controlled.

### 3. Human resource risk in the hotel industry

The main problem in the functioning of modern hotel companies is the fact that there is no certainty with regard to activities. Threats that occur when conducting business activity may lead a company to bankruptcy and a list of risk factors is long and diverse. Their common characteristic is the fact that they directly affect the financial situation of an entity. By contributing to generating specific types of costs or increasing sales revenue, they imply the level of effectiveness of human resource and investment decisions which is reflected in the company’s situation. Therefore, it is of great significance to identify risk factors which may affect the functioning of a given entity.

One of the types of risk is human resource risk, that is the risk connected with an organization’s social system. It can be defined as “involvement under conditions of uncertainty in ac-

tivities concerning personnel which may prove unsuccessful” (Lipka, 2002a, p. 24). Exposing itself to danger, a company may significantly increase not only its chances of survival, but also its chances of development, and human capital may be enriched. Depending on speed and accuracy of the undertaken human resource activities, it can pose a threat to (loss for) or be an opportunity for business activity.

Human resource risk is not a homogenous category which means that many partial types of risk can be distinguished, namely (Tokarz-Kocik 2012):

- recruitment risk—failure to adjust labour demand and supply in quantitative and qualitative terms;
- selection risk—is a decision-making situation which involves opportunities and threats arising from employing a given person on the basis of adopted selection criteria;
- evaluation risk connected with the process of developing, formulating and expressing personal attributes, employee’s behaviour at work and the results they obtain;
- risk of investment in employees’ development, including the following partial types of human resource risk: the risk of the lack of employees’ willingness to develop; the risk of the lack of expenditure on human capital; the risk of leaving work by employees who the company invested in; the risk of a gap between personnel’s knowledge and skills;
- motivational risk—consequences for a company resulting from a specific selection of motivational tools towards particular employees;
- risk of occurring abnormal conduct, including conduct not following business ethics;
- risk of redundancy may be connected with such processes as restructuring, privatization, mergers (the costs of severance pay, a new recruitment process, training for a new employee).

Human resource activities are subject to recruitment risk arising from the changeability of phenomena in the labour market. The above phenomena build up due to the growing mobility of society and migration risk, and thus human resource risk becomes increasingly multi-dimensional and changes dynamically over time. Labour market expansion due to the Polish membership in the European Union provides more possibilities of searching an attractive job by employees and intensifies economic migration. For Polish companies, it is a challenge in terms of a growth of competitiveness which goes beyond national borders and also makes it necessary to open up to immigrants from other countries (Bizon-Górecka, 2009).

Selection risk is connected with the lack of certainty in terms of the choice of employees as people who should enrich hotel human resources. Therefore, it includes a threat that instead of multiplying human capital qualitatively it will lead to its impoverishment with all related consequences.

The next function of human resource management, that is evaluation, is subject to a special risk due to difficulties with a selection of relevant evaluation techniques. Nevertheless, resigning from evaluation to not make mistakes is not a right solution as evaluation results are known to constitute a starting point for various human resource decisions. When determining the level of evaluation risk, the level of objectivity of evaluation procedures performed in a company should be taken into account, including an appraisal interview.

The motivation function also involves risk. The highest risk level corresponds with obtaining a result which is the opposite of motivational activities, that is the state of employees’ demotivation, despite particular expenditure on satisfying employees’ needs in a better way.



Leading to that may result from failure to notice the types of risk at the operational level occurring when applying specific financial and non-financial incentives.

Excessive, insufficient as well as improperly targeted managers' efforts aiming at developing attitudes and behaviours of employees may be harmful. An incentive scheme should be not only consistent with the general strategy of a company (including: sub-strategy of cost development), but also compatible with the requirements of the company's environment (i.e. attracting right job candidates). Failure to meet any of the above requirements that modern incentive schemes face increases motivational risk, thus the risk of a hotel as an employer (McGee and Rennie, 2012).

Due to the service aspect of a hotel product, the measurement of social dysfunctions and preventive actions that can be undertaken in this respect is of great significance for the functioning of a company. The mentioned social dysfunctions have specific financial implications which translate into a decrease in work efficiency, an increase in the number (cost) of mistakes as well as a decrease in trust in a service provider experienced by both corporate and individual clients. When the possibilities of reducing negative phenomena in the form of various abnormal behaviours are considered, it is possible to obtain social effects (e.g. improving the working atmosphere) as well as economic ones (a higher level of motivation to work smoothly and efficiently).

As there is a variety of risks, a key problem for entrepreneurs in the hotel industry is defining sources of human resource risk, the extent and impact it can have on the conducted activity, and then undertaking activities aiming at reducing risk.

#### 4. Research methodology

An initial stage of the analysis of human resource risk is identifying its sources. A static approach to potential opportunities and threats without any measure is insufficient for an organization as it does not provide information necessary to rank risk factors according to their significance to the functioning of a hotel. Therefore, in the next stage types of risks distinguished at the identification stage have to be assessed.

The assessment involves attributing relevant categories to specific types of risk. In practice, it requires analyzing two aspects:

- susceptibility of a given factor to unexpected changes, i.e. the probability of occurrence of some event;
- and consequences of these changes, that is the impact of the event on company's results.

It requires determining the so-called subjective probability as human resource events are usually of an individual nature, so it is not possible to determine their objective probability referring to mass and repeatable events (Lipka, 2002b, p. 59). Therefore, this stage involves connecting losses with the probability of their occurrence. The risk of activity increases when the probability of the occurrence of a given event increases or when the scale of effects of this phenomenon grows.

The assessment of human resource risk in the hotel industry was conducted in five hotels in Poland which represent all standards according to hotel rating (1–5 stars). Among the hotels, there were three chain hotels and two independent hotels. The hotel selection was purposive.

To assess the level of human resource risk in the analyzed hotels, the author used her original method based on the research on the opinions of hotel managers responsible for human resource

policies. The method of a structured interview was used combining the advantages of an interview and a survey. The questionnaire included a list of factors illustrating specific aspects of human resource risk. The interview involved two stages. In the first one, respondents answered the question: “How probable is it that the phenomenon listed in the table will happen in the analyzed hotel?” The options of answers corresponded with the five-point scale defining the probability of occurrence:

- 1—rare;
- 2—unlikely;
- 3—moderate;
- 4—likely;
- 5—very likely to occur.

In the second part of the interview, respondents assessed hypothetical impact of the occurrence of a given event on the functioning of a hotel. When answering, respondents could choose one of five options:

- 1—marginal impact;
- 2—minor impact;
- 3—moderate impact;
- 4—major impact;
- 5—extreme impact.

On the basis of the respondents’ answers, the indicators of human resource risk level (HRRL) for specific events, separately for each analyzed hotel, were calculated.

The level of risk is a resultant (product) of two parameters expressed in points, i.e. the probability of risk occurrence and its potential impact on a company. Due to a five-point scale of both probability and impact of risk occurrence, the level of a given type of risk could adopt values from 1 to 25. It was assumed that for the HRRL indicator of a value:

- from 15 to 25—risk is high,
- from 8 to 12—risk is moderate,
- from 1 to 6—risk is low.

The Table 2 shows findings of the interview.

Table 2. Human resource risk factors in five hotels in Poland

List of human resource threats	Probability that the event occurs (1–4) or has occurred in a hotel (5)					Potential impact					Risk level				
	(A)					(B)					(A) × (B)				
	1*	2*	3*	4*	5*	1*	2*	3*	4*	5*	1*	2*	3*	4*	5*
Hotel category (1–5 stars)															
a) lack of people willing to work in a hotel	1	1	2	3	1	5	5	4	5	4	5	5	8	15	4
b) lack of candidates with appropriate qualifications to work in a hotel	2	3	2	3	1	4	4	3	3	3	8	12	6	9	3
c) inefficient flow of information between employees (communication risk)	2	3	2	3	3	4	4	3	3	2	8	12	6	9	6
d) frequent conflict situations between employees	1	3	1	4	1	4	4	2	3	3	4	12	2	12	3
e) incorrect choice of selection techniques (selecting inappropriate candidate, necessity of new recruitment during first 3 months of employment)	2	2	2	1	3	5	4	3	5	3	10	8	6	5	9
f) errors at the stage of introducing a new employee (low efficiency, conflicts)	2	3	3	2	1	5	3	3	5	4	10	9	9	10	4
g) incorrect determination of training needs (unsuitable training theme)	1	3	2	2	1	5	3	3	5	1	5	9	6	10	1
h) lack of training effectiveness assessment	3	2	3	1	1	4	4	2	4	1	12	8	6	4	1
i) employee disloyalty (an employee who has received a lot of training from a hotel leaves work)	1	3	3	2	2	5	4	3	5	4	5	12	9	10	8
j) lack of analysis of factors motivating particular employees	2	2	3	2	3	4	4	3	4	4	8	8	9	8	12
k) failure to adapt motivational methods to actual needs and employees	2	2	3	2	1	4	4	2	4	5	8	8	6	8	5

l) incorrect selection of assessment methods (excessive costs, incomplete information about an employee)	2	2	3	1	1	3	3	2	4	3	6	6	6	4	3
m) lack of employees' knowledge of assessment criteria	2	2	3	1	1	4	4	2	5	4	8	8	6	5	4
n) failure to use assessment results during further human resource decisions (e.g. about remuneration)	2	2	3	1	1	4	5	3	5	4	8	10	9	5	4
o) lack of clear promotion procedures (career paths)	1	2	3	2	1	4	4	3	4	4	4	8	9	8	4
p) pathological phenomena in a hotel (employee theft of, e.g. alcohol, cleaning agents)	1	1	2	3	2	5	5	4	5	4	5	5	8	15	8
q) stealing from hotel guests	1	1	1	1	1	5	5	4	5	5	5	5	4	5	5
r) high voluntary turnover of receptionists	1	1	2	4	1	5	4	3	4	5	5	4	6	16	5
s) high voluntary turnover of porters <sup>a</sup>	-	1	1	1	1	-	4	3	3	5	-	4	3	3	5
t) high voluntary turnover of room attendants	1	1	1	4	1	4	4	3	2	5	4	4	3	8	5
u) high voluntary turnover of chefs	1	1	2	2	2	4	4	3	3	3	4	4	6	6	6
v) high voluntary turnover of waiters, bartenders	1	1	2	2	2	4	4	3	4	5	4	4	6	8	10
w) high voluntary turnover of managers	1	1	1	2	1	5	4	5	4	4	5	4	5	8	4
x) high voluntary turnover of marketing employees <sup>a</sup>	-	1	3	5	1	-	4	4	4	4	-	4	12	20	4
y) reduced quality of service due to improper behaviour of personnel	1	1	2	3	1	5	4	4	5	3	5	4	8	15	3
z) losing by a hotel the reputation of a good employer as a result of improper human resource activities	1	1	2	3	1	5	4	4	5	4	5	4	8	15	4

<sup>a</sup> No answers in a 1-star hotel because the listed positions are not present there.

Source: Author's own elaboration based on primary research results.

The findings showed in Table 2 indicate that managers perceive risk in hotels quite differently and it does not depend directly on the category of a hotel where the respondent works.

The occurrence of the majority of human resource events presented in Table 2 in 1-, 2- and 3-star hotels as well as 5-star hotels was assessed by respondents as rare or unlikely; only the manager of the 4-star hotel marked that the excessive turnover of receptionists and room attendants is likely, and the turnover of marketing employees is very likely. It follows that due to the complexity of human nature and diverse conditions for activities each hotel company should assess human resource risk individually. It can be confirmed when comparing the answers of the managers of 4- and 5-star hotels concerning the event marked in the table with the letter *x*, i.e. high turnover of marketing employees. The manager of the 4-star hotel considered this event as very likely and with major impact on the hotel functioning, whereas the manager of the 5-star hotel (that is a hotel of a similar category) marked the answer—rare. It is worth emphasizing that both hotels are located in seaside resorts where there is the so-called employee's market. The cause of the excessive turnover of marketing employees in the 4-star hotel was a high risk of conflicts between employees, and this was not the case in the 5-star hotel.

The results of the second part of the research concerning potential consequences of an event on the functioning of a hotel were less diverse. Respondents most often chose the answer options—"major" or "extreme" impact of the event on hotel operations. The next step in risk assessment is preparing the so-called risk map as part of which the level of risk for the organization is analyzed (Rudnicki 2008, p. 14). Scores, including the presentation of risk in the form of a  $5 \times 5$  matrix for the analyzed hotels, are presented in Figure 1.

IMPACT					
<b>Extreme</b> 5	<b>5</b> 1*—a, g, i, p, q, r, w, y, z 2*—a, p, q 3*—w 4*—e, m, n, q 5*—k, q, r, s, t,	<b>10</b> 1*—e, f 2*—n 4*—f, g, i 5*—v	<b>15</b> 4*—a, p, y, z	<b>20</b>	<b>25</b>
<b>Major</b> 4	<b>4</b> 1*—d, o, t, u 2*—r, s, t, u, v, w, x, y, z 3*—q 4*—h, l 5*—a, f, m, n, o, w, x, z	<b>8</b> 1*—b, c, j, k, m, n 2*—e, h, j, k, m, o 3*—a, p, y, z 4*—j, k, o, v, w 5*—i, p	<b>12</b> 1*—h 2*—b, c, d, i 3*—x 5*—j	<b>16</b> 4*—r	<b>20</b> 4*—x
<b>Moderate</b> 3	<b>3</b> 1*—s 3*—s, t 4*—s 5*—b, d, l, y	<b>6</b> 1*—l 2*—l 3*—b, c, e, g, r, u, v 4*—u 5*—u	<b>9</b> 2*—f, g 3*—f, i, j, n, o 4*—b, c 5*—e	<b>12</b> 4*—d	<b>15</b>
<b>Minor</b> 2	<b>2</b> 3*—d	<b>4</b>	<b>6</b> 3*—h, k, l, m 5*—a	<b>8</b> 4*—t	<b>10</b>
<b>Marginal</b> 1	<b>1</b> 5*—g, h	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>Rare</b> 1	<b>Unlikely</b> 2	<b>Moderate</b> 3	<b>Likely</b> 4	<b>Very likely</b> 5
<b>PROBABILITY</b>					

1\*, 2\*, 3\*, 4\*, 5\*—the category of the analyzed hotel (from 1 to 5 stars)

Letters *a–z* mean human resource threats listed in the first column of Table 2.

Figure 1. Map of human resource risk in the analyzed hotels

Source: Author's own elaboration based on primary research results.

In order to assess risk, the following scale was applied:

- high risk (15–25)—significantly affects key hotel operations; makes performing tasks and objectives impossible; generates financial losses; requires taking immediate corrective measures;
- moderate risk (8–12)—potentially affects key hotel operations; poses a threat to performing tasks and objectives; poses a threat to financial losses; requires regular monitoring and verification as well as taking proper measures;

– low risk (1–6)—does not affect key hotel operations; does not block performing tasks and objectives; requires monitoring and observation.

High risk was identified exclusively in the 4-star hotel for the following events:

- lack of people willing to work in a hotel (risk marked in Table 2 and in Figure 1 with the letter *a*);
- pathological phenomena in a hotel (risk marked in Table 2 and in Figure 1 with the letter *p*);
- high turnover of receptionists (risk marked in Table 2 and in Figure 1 with the letter *r*);
- high turnover of marketing employees (risk marked in Table 2 and in Figure 1 with the letter *x*);
- reducing the quality of service due to improper behaviour of personnel (risk marked in Table 2 and in Figure 1 with the letter *y*);
- losing by a hotel the reputation of a good employer as a result of improper human resource activities (risk marked in Table 2 and in Figure 1 with the letter *z*).

The types of risk listed above require taking immediate corrective measures.

In the case of the remaining analyzed hotels (1-, 2-, 3- and 5-star hotels) human resource risk is moderate and low, which means that they have to be monitored.

Specific features of a hotel product (such as uniqueness, personal contact when providing services) cause that employees' skills and attitudes affect hotel guest satisfaction, thus hotel financial results. The inappropriate behaviour of demotivated personnel can negatively affect the functioning of a hotel company and the profit levels. In order to reduce human resource risk in hotels, it is important to analyze the level of fulfilment of specific employees' needs constantly and minimize negative effects of inconsistent human resource activities through developing a coherent system of financial and non-financial incentives affecting subordinates' behaviours.

## 5. Conclusion

Determining the level of human resource risk enables evaluating and prioritizing it, that is sorting the identified and assessed types of risk by the extent to which the risk poses a threat to the performance of the tasks and objectives of a hotel. With regard to all identified and assessed types of risk, a proper type of risk response should be determined.

The case studies presented in the article confirmed that:

- the level of human resource risk depends considerably on the management and methods of motivating employees;
- proper human resource management (especially appropriate motivational activities) reduces human resource risk and leads to a higher level of employee commitment, whereas inappropriate motivational activities result in an increase in human resource turnover in hotels;
- the process of motivating consciously requires that managers have high abilities enabling them to understand employees' needs and skills to predict the motivational effectiveness of specific incentives; this in turn means the necessity of surveying employees' expectations regularly and determining individual hierarchies of particular incentives.

It is important that a hotel monitors employees' opinions due to several reasons. Firstly, it is often the only reliable source of knowledge of employees' needs as well as their assessment of a hotel as an employer. Secondly, it enables allocating funds properly and developing

long-term plans concerning personnel, and it is an instrument warning of upcoming threats. Moreover, from the point of view of employees, personnel opinion surveys are a clear signal that the company management is interested in the opinions of employees and takes them into account when making important decisions.

Due to a limited number of research entities, the article involves the analysis of the case study. Therefore, the research findings cannot be generalized with regard to the whole industry. However, they can serve as the basis for a discussion on the phenomenon of human resource risk in the hotel industry and its impact on work efficiency, thus the functioning of the whole organization.

One might also consider further research including new factors determining employees' behaviour: individual and macroeconomic ones, as well as the analysis of their impact on the human resource risk level. It is also worth extending the research (e.g. generalizing it across Poland) as well as applying less subjective instruments of measurement.

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## **Ocena ryzyka personalnego w wybranych hotelach w województwie zachodniopomorskim**

**Abstrakt:** Celem artykułu jest ocena ryzyka personalnego w wybranych przedsiębiorstwach hotelarskich. Część teoretyczna opracowania jest wynikiem wykorzystania metody badawczej desk research. W części empirycznej przedstawiono wyniki wywiadów przeprowadzonych z menedżerami personalnymi w pięciu hotelach zlokalizowanych w województwie zachodniopomorskim i dokonano oceny poziomu ryzyka personalnego w badanych obiektach. Respondenci oceniali dwa elementy: prawdopodobieństwo wystąpienia zda-

rzeń ryzykownych oraz wielkość ich skutków dla hotelu. Poziom ryzyka personalnego jest iloczynem tych dwóch wyrażonych punktowo parametrów. Ze względu na ograniczoną liczbę podmiotów badawczych artykuł ma charakter analizy studium przypadku. Stąd też rezultatów badań nie można uogólniać na całą branżę. Mogą one jednak stanowić podstawę do dyskusji nad zjawiskiem ryzyka personalnego w hotelarstwie i jego wpływu na efektywność pracy, a w rezultacie na funkcjonowanie całej organizacji.

**Słowa kluczowe:** ryzyko, zasoby ludzkie, personel, hotel



# Assessment of the motivational potential of work in a company—research results

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**Abstract:** The article aims to present a system for assessing the motivational potential of work in a company, but also to identify the innovation gap and indicate how to bridge it. The above measurement was carried out in aggregate form, consisting in combining particular assessment criteria. The study adopted hierarchical intervals of the model of motivational potential of work. The main research problem was formulated as the identification and assessment of the motivational potential of work in the studied company. The subject of the analysis were internal factors of the motivational potential of work, while their mutual reference is the activity and development of the company. The overall assessment of the motivational potential of the surveyed company is satisfactory, and even good, but the performance of the motivator criterion, i.e. work stability, praise, awards, recognition, training provided by the employer, flexible working hours, is poor. It is essential and possible to develop a method of diagnosing a system of motivating employees to work in a company whose subject and scope of research would include motivators, hygiene factors and demotivation factors. The practical results of these studies should be a premise for improving the incentive system and the basis for appropriate economic pragmatics.

**Keywords:** motivational potential of work, motivators, demotivators, hygiene factors

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## 1. Introduction

According to the basic assumptions of the concept of human resources management, the employees of an organization are its strategic resource, they constitute the potential in which it should invest, which is worth doing. People are the unique capital of the organization, worth special care, and investment in “human resources”, although usually expensive, is highly profitable. “It can even be said that the development of human resources is a fundamental strategy for the survival and development of the organization. Employee development should therefore be a fundamental value for both the organization and for itself” (Listwan, 1998, p. 73). Therefore, it

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seems that Aleksy Pocztowski is accurate in observing that “people are not a resource, but they have resources, namely knowledge, abilities, skills, values, motivations, health and attitudes that allow them to perform various roles in the organization” (Pocztowski, 2007, p. 23). It is also believed that human resource management can affect many areas of a company’s operations, including strategic management, an increase in innovation, creativity and quality of work, it can be an integration element and builds the organizational culture of a company, and above all it is to facilitate the achievement of organizational success (Warwas and Rogozińska-Pawelczyk, 2016, p. 17). Given the above, it seems important to learn the criteria and ways to study motivation in terms of the potential of work in a given company.

The motivational potential of work depends on the willingness and ability of the employee himself, on his particular characteristics, but also on the motivational characteristics of the work he does. It contains motivation factors with various action vectors and instruments for shaping working conditions and organizational relations in the context of work motivation. It is related to the company and the employee. It is a component of work potential. Obviously, each job has a different motivational potential, but the essence is that it can be determined and then shaped and raised (Kozioł, 2020).

While defining the potential of work, one should refer to the whole potential (and thus it is wider in relation to the motivational potential of work), which lies in the people working at a specific time in an organizational unit (Gableta, 1998, p. 12). Therefore, it consists of the qualification potential, motivation to work, as well as working time, i.e. the quantitative dimension of the labour potential (Sajkiewicz, 1998, p. 7).

The potential of work understood as a synonym of human capital can be considered on a microeconomic scale, therefore it concerns the company and the employee. As a component of the production potential, it is (motivational potential of work, more broadly work potential) the current and future ability to perform assumed tasks and solve the problem of company development, improve its competitive position on the market.

This article will provide an introduction to broader research on the potential of companies that are intended to be innovative and competitive in the labour market. The text contains a description of aspects of work motivation research, process conception and the course of research as well as their analysis. The goal of the actions taken is to analyze the case based on the assessment of the motivational potential of work in the company.

## **2. Substantive and methodical aspects of work motivation research**

The study of the level of work motivation, due to its complexity, is not an easy process. The very needs of employees, obviously varied, can affect the different impact of the same incentive on two different people. If the stimulus does not satisfy the needs of a person, it will only have a neutral effect. In addition, due to the specific features of various types of work or industries, it is difficult to develop a universal model that can be implemented without any changes in all organizations interested in conducting such research.

It should be noted that human capital can be defined as a set of qualitative and quantitative elements most generally clustered around three dimensions, which are:

- intellectual capital—referred to as knowledge accumulated and flowing through the organization;

- social capital—knowledge whose source is a network of relationships inside and outside the organization. It means the features of social life enabling participants to work together more effectively to achieve goals;
- organizational capital—institutionalized knowledge accumulated by the company in databases and documentation (Armstrong, 2011, pp. 76–77).

The human capital described above is characterized by the fact that each member of the organization, leaving his workplace, takes his unique knowledge with him. This determines the growing importance of human capital management (Armstrong, 2011, p. 33).

An adequate application perspective for analyzing an employee's functioning in the work environment can be found in, among others, R. Sternberg's theory of intelligence (1985, cf. Biela, 1992, p. 33), which emphasizes that intelligent behaviour can only make sense if it is qualified by the specific environment in which man functions. In the context of this theory, we can talk about intelligent behaviour of an employee in a given workplace, in a particular institution. So there is no such thing as a generally intelligent worker, but he is more or less intelligent. Sternberg's theory of intelligence would therefore indicate the need for strict qualification of the assessment of employee behaviour towards the work environment, workplace characteristics, organizational structure, tasks and goals of work in a given position, and social relations in a given institution. Intelligent functioning of an employee in a given position is such behaviour that effectively implements the tasks and goals of work in this position with the lowest possible physical and mental energy expenditure (see Biela, 1992, pp. 33–34). Theoretical terms defining the instructions for the intelligent functioning of an employee in certain ergonomic conditions must, however, assume a broader concept of ergonomics. Biela (1992, p. 34) indicates that Sternberg's triarchic theory of intelligence implies the concept of a goal whose meaning is fully understood only in a particular environment. This, in turn, gives the opportunity to extend this theory to the axiological aspect, which allows integration of the assessment of the effectiveness of action with his moral assessment for the acting person. In this perspective, intelligent action would also be morally good from the point of view of the moral goals and standards of the human individual.

Leszek Koziół and Małgorzata Tyrańska understand by the motivational system “an ordered set of tools and motivational factors related to each other and forming a whole, aimed at creating conditions and inducing employees to maintain organizational behaviours functioning in relation to the company's goals” (2002, pp. 28–29). In turn, according to Stanisława Borkowska, “the motivating system is a coherent and purposely selected set of motivational tools from the point of view of achieving the goals of the organization and employees” (2008, p. 225).

The incentive system built in the company is a system of incentives, measures and conditions that are to encourage employees to engage in their work and official duties in the most advantageous way possible for the company and giving employees personal satisfaction, as well as to encourage entrepreneurial and creative activities. A good incentive system can be built if management and people who influence its creation know what employees' expectations are (Sekula, 2008, p. 225).

Properly selected tools for testing the motivational system fulfil three functions (see Soroka-Potrzebna, 2016):

1. Disciplinary (specifying tasks, completion date).

2. Informative (the employee is aware of possible rewards and penalties).
3. Educational by outlining the behaviour desired by the employer.

For this reason, although the selection and composition of appropriate instruments is a complex and difficult task, it undeniably contributes to positive changes in the company.

One of the most important problems, according to research by Pęcek, Walas-Trębacz (2018, p. 24), is the lack of transparency in the construction of incentive systems and provision of information to employees. Without reliable and specific knowledge about the structure of the existing incentive system, any attempt to improve it will not be noticed by employees. According to the respondents, the remuneration received is too low and inadequate to the work they do. Paying higher wages is an additional cost for the employer, but it is certainly worth considering the possibility of making changes that will translate into a specific link between pay and the level of results achieved by particular employees. In the case of a company having too weak a financial condition to increase the level of commitment or motivation to work, for example, one could change the management style of the superior to one more preferred by employees, i.e. team, which can be an effective solution in a given situation in a company. Ensuring a friendly atmosphere at work or providing employees with the opportunity for self-development can bring measurable benefits to the company, without requiring large financial outlays.

### 3. Theses of the concept and stages of research

As it was shown in the introduction, the purpose of the article is to present the concept of a system for assessing the motivational potential of work in a company and to present the results of empirical research. The research problem was described as the identification and assessment of the motivational potential of work in the studied company.

The following theses were adopted in the presented concept:

1. Motivational potential of work is a function and also a criterion for assessing the company's work potential, as well as projecting the possibility of dynamizing and controlling the development of this potential.
2. The motivational potential of work can be considered in partial forms (which correspond to the determinants of this motivation), and it can also be expressed in aggregate form for the category of determinants, the company or the entire industry.
3. The motivational potential of work depends on external factors (e.g. intensification of competitiveness on the labour market), but above all internal factors.

The subject of the analysis were internal factors of the motivational potential of work, while their mutual reference is the activity and development of the company. In particular, attention was paid to the relations and working conditions, the organization of the company's work, as well as the particular characteristics of employees. The practical goal of the research is to recognize the innovation capability gap, which is the difference between the desired and the level of motivational potential of work that the company possesses. During the measurement of the competence gap, it is determined what the state of divergence between the above-mentioned values is and directions and ways of levelling this gap are indicated.

To achieve the objectives of the work and verify theses the following research methods were used: literature analysis, analysis of impact factors, questionnaire method, expert research, case study and categorization method.

The framework for the course of the research procedure includes the following stages:

- selection of assessment criteria;
- measuring the motivational potential of work;
- company categorization;
- assessment of the motivational potential of work in the company—case study.

The study was conducted in a group of 78 people; the number of women was higher than men (which is 57.89% and 42.11%, respectively). The respondents are people working in one of the district authorities of southern Poland. The large majority of respondents included a group between 20 and 30 years old (73.68%), the next group were people aged 31–40 (13.17%), people over 40 constituted 7.89% , the smallest group were people under 20 years of age (5.26%).

The analysis of the education of the respondents indicates that the vast majority of them completed higher education (73.68%), 10.53% of the respondents had secondary education. Regarding experience, 31.58% of respondents indicated that they had up to 2 years' experience, 26.32%—2–4 years, 23.68% of the respondents worked professionally for more than four years, while the least numerous group were professionally employed less than one year—18.42%.

## **4. Methodology for assessing the motivational potential of work**

### **4.1. Selection of evaluation criteria**

The set of determinants of the motivational potential of work, which is the basis of the system for assessing this potential, was identified during our own two-phase research. In the first of these were identified, among many variables of the environment and the organization's resources, by analyzing the impact factors, those that may affect the motivation of work and constitute its motivational potential. In the identification process, several different sources of information were used, e.g. statistical data, special reports, previous research results and expert opinions along with opinions of the managerial staff and specialists of the surveyed companies. The collected comments and statements constituted the basis for the selection of several dozen determinants of the motivational potential of work in the company.

In the second phase of the study, the significance and functionality of factors affecting the motivational potential of work in the company were analyzed and those that have had, and will have in the future, significant cause-effect relationships with innovation were identified. Finally, 30 determinants were distinguished, 10 in each of the groups of factors, i.e. motivators, hygiene factors and demotivators (see Table 1).

In the discussed case, the assessment criteria are the basic, key determinants of the development of the company's motivational potential (see Table 1).

### **4.2. Measurement of the motivational potential of work**

The measurement of the motivational potential of work is a verifying assessment, consisting in comparing the actual state with the accepted standard. Assessment patterns make it possible to determine the degree of intensity of the features constituting the assessment crite-

ria. The description of the degree of trait intensity was determined on a five-point scale from 1 to 5, with 1 being of little use, 5—very useful (no response was marked as 0).

The measurement of the motivational potential of work can be presented in aggregate form. Aggregate assessment involves combining particular assessment criteria. The overall indicator of the motivational potential of work in a company can be calculated from the formula:

$$\text{MPW} = \frac{a+b+c+d+e+f+g+h+i+j}{10}$$

where:

MPW—value of the motivational potential of work index

$a, \dots, j$ —criteria symbols.

Aggregate assessment, according to Stabryła (2013, p. 9), is a stage of point analysis of functionality, in addition to determining the weighted formula of process management system functionality, point normalization of the level of fulfilling the function in expanded form, determining the weights of particular functions and categorization of the IPF index.

Table 1. Criteria for assessing the motivational potential of work

Criterion symbol	Motivational criteria
Motivators	
<i>a</i>	Cash prizes, bonuses
<i>b</i>	Praise, awards recognition, recognition
<i>c</i>	Chance of promotion
<i>d</i>	Prospects for personal development
<i>e</i>	Additional benefits, rich social package
<i>f</i>	Training provided by the employer
<i>g</i>	Flexible working hours
<i>h</i>	Variety of tasks performed
<i>i</i>	Work stability
<i>j</i>	Prestige of the workplace
Hygiene factors	
<i>a</i>	Responsibility for the work performed
<i>b</i>	Working time
<i>c</i>	Salary, remuneration
<i>d</i>	Atmosphere at work
<i>e</i>	Management control and supervision
<i>f</i>	Workload
<i>g</i>	Principles and policy of the organizational unit
<i>h</i>	Workplace equipment
<i>i</i>	Health and safety conditions
<i>j</i>	Workplace appearance, comfort, functionality



Demotivators	
<i>a</i>	Conclusion of short-term contracts with employees
<i>b</i>	Rigid rules prevailing in the organization
<i>c</i>	Immoral behaviour of management
<i>d</i>	Harassment
<i>e</i>	Work beyond employee capabilities
<i>f</i>	The need to act against the employee's beliefs
<i>g</i>	Nepotism
<i>h</i>	Public and/ or unfounded criticism
<i>i</i>	Loss of bonuses or part of remuneration
<i>j</i>	Tasks too difficult to perform

Source: Author's own elaboration.

### 4.3. Company categorization

The basis for the categorization of a company is the aggregate result of assessment of its motivational potential of work. Hierarchical ranges of the motivational potential of work model (MPW) have been adopted in the following Tables 2, 3 and 4.

Table 2. Hierarchical intervals of the motivational potential of work index for motivators

Category	Scoring: motivators	
A	4.01–5.00	Benchmark
B	3.01–4.00	Condition of high usability
C	2.01–3.00	Useable condition
D	1.01–2.00	Unusable condition

Source: Author's own elaboration.

Unusable condition is a state of fulfilment of functions, i.e. motivational potential of work (MPW), not contributing to the development of work potential. Useable condition is such a degree of fulfilling a function that is greater or equal to the contractually assumed sufficient degree of fulfilling the function of motivational potential of work. Condition of high usability, goodness, is the proper quality of the motivational potential of work. The benchmark is the ideal level to fulfil the function of motivational potential for work.

Table 3. Hierarchical ranges of the motivational potential of work index for hygiene factors

Category	Scoring: hygiene factors	
A	2.51–3.50	Benchmark
B	2.01–2.50 or 3.51–4.00	Condition of high usability
C	1.51–2.00 or 4.01–4.50	Useable condition
D	1.01–1.50 or 4.51–5.00	Unusable condition

Source: Author's own elaboration.

Table 4. Hierarchical intervals of the motivational potential of work index for demotivators

Category	Scoring: demotivators	
A	1.00–2.00	Benchmark
B	2.01–3.00	Condition of high usability
C	3.01–4.00	Useable condition
D	4.01–5.00	Unusable condition

Source: Author's own elaboration.

## 5. Assessment of the motivational potential of work in a company—case study

The purpose of the analysis presented in this part of the article is to verify the concept of the motivational potential of work in an organization and to present the results of empirical research. During the research work, cooperation was established with a company whose management agreed to share relevant data and conduct a survey among employees. The results of analytical work (surveys) are presented in Table 5, which presents the calculated average degree of intensity of a given feature (assessment criterion) of the motivational potential of work in the company, i.e. partial and aggregate assessment of the motivational potential of work.

Table 5. List of criteria for assessing the motivational potential of work in the company

Criterion symbol	Criteria for assessing the motivational potential of work	Degree of feature intensity (in %)					Average degree
		1	2	3	4	5	
<b>Motivators</b>							
<i>a</i>	Cash prizes, bonuses	18.42	26.32	21.05	13.16	21.05	2.92
<i>b</i>	Praise, awards, recognition	34.21	26.32	23.68	7.89	5.26	2.16
<i>c</i>	Chance of promotion	15.79	39.47	21.05	10.53	13.16	2.66
<i>d</i>	Prospects for personal development	18.42	28.95	23.68	15.79	13.16	2.76
<i>e</i>	Additional benefits, rich social package	10.53	21.05	13.16	21.05	34.21	3.47
<i>f</i>	Training provided by the employer	44.74	5.26	31.58	7.89	10.53	2.34
<i>g</i>	Flexible working hours	31.58	28.95	18.42	18.42	2.63	2.32
<i>h</i>	Variety of tasks performed	5.26	10.53	23.68	31.58	26.32	3.55
<i>i</i>	Work stability	13.16	15.79	31.58	10.53	28.95	2.26
<i>j</i>	Prestige of the workplace	5.26	31.58	34.21	15.79	13.16	3.00
Aggregate result of the average MPW rating of motivational factors							2.74

<b>Hygiene factors</b>							
<i>a</i>	Responsibility for the work performed	2.63	5.26	31.58	34.21	26.32	3.76
<i>b</i>	Working time	0.00	7.89	18.42	39.47	34.21	4.00
<i>c</i>	Salary, remuneration	5.26	15.79	50.00	18.42	10.53	3.13
<i>d</i>	Atmosphere at work	5.26	2.63	10.53	36.84	42.11	4.00
<i>e</i>	Management control and supervision	23.68	13.16	39.47	18.42	5.26	2.66
<i>f</i>	Workload	5.26	7.89	47.37	21.05	42.11	3.39
<i>g</i>	Principles and policy of the organizational unit	21.05	5.26	26.32	31.58	15.79	3.16
<i>h</i>	Workplace equipment	0.00	2.63	34.21	39.47	23.68	3.84
<i>i</i>	Health and safety conditions	5.26	10.53	5.26	63.16	15.79	3.74
<i>j</i>	Workplace appearance, comfort, functionality	5.26	2.63	10.53	47.37	34.21	4.03
Aggregate result of the average MPW rating of hygiene factors							3.57
<b>Demotivators</b>							
<i>a</i>	Conclusion of short-term contracts with employees	21.05	21.05	15.79	7.89	34.21	3.13
<i>b</i>	Rigid rules prevailing in the organization	26.32	23.68	28.95	7.89	13.16	2.58
<i>c</i>	Immoral behaviour of management	39.47	15.79	10.53	10.53	23.68	2.63
<i>d</i>	Harassment	68.42	21.05	2.63	7.89	0.00	1.50
<i>e</i>	Work beyond employee capabilities	18.42	31.58	36.84	13.16	0.00	2.45
<i>f</i>	The need to act against the employee's beliefs	10.53	10.53	26.32	26.32	26.32	3.47
<i>g</i>	Nepotism	28.95	18.42	31.58	5.26	15.79	2.60
<i>h</i>	Public and/ or unfounded criticism	52.63	7.89	13.16	13.16	13.16	2.26
<i>i</i>	Loss of bonuses or part of remuneration	52.63	15.79	2.63	13.16	15.79	2.24
<i>j</i>	Tasks too difficult to perform	47.37	28.95	18.42	2.63	2.63	1.84
Aggregate result of the average MPW rating of demotivating factors							2.47

Source: Author's own elaboration.

Analysis of the results collected in the table above (see Table 5) indicates that the aggregate result of the average MPW rating of motivational factors falls into category C, described as the useable condition, the aggregate result of the average MPW rating of hygiene factors, reaching the value of 3.57, falls within category B, as well as the aggregate result of the average MPW rating of demotivating factors, obtaining the category of high usability status.

Considering the particular criteria for assessing the motivational potential of work in the area of motivators, it is noteworthy that no benchmark value was obtained for any feature. The average degree of intensity indicates that the variety of tasks performed and additional benefits and a rich social package have obtained the value of high usability, no feature was considered unusable by the respondents, the other features reach a useable condition (see Table 5 and Table 2).

Hygiene factors in the assessment of employees of the analyzed company were defined as benchmarks in the area of the following features: management control and supervision, workload, principles and policy of the organizational unit. The features within the high usability range are: responsibility for the work performed, working time, atmosphere at work, workplace equipment and OHS conditions, the other features are in the useable condition range (see Table 5 and Table 3).

A negative form of motivation are demotivators which contribute to the deterioration of the individual's condition or the threat of such deterioration. They are expressed by a sense of lack, discomfort, unpleasantness, trouble, anxiety, etc.—they are a source of stress. The tension associated with it is the greater, the stronger the harmful factor and the longer its exposure time (Kozioł and Kozioł, 2016, p. 106). In the analysis presented, the surveyed employees of the company indicated harassment and tasks too difficult to perform in the criterion of demotivators as benchmark, but no feature of unusable value was indicated. The following features were recognized as a state of high usability: rigid rules prevailing in the organization, immoral behaviour of the management, work beyond the employee's abilities, nepotism, public and/ or unfounded criticism and loss of bonus or part of remuneration; other features obtained values falling in category C defined as the useable condition (see Table 5 and Table 4).

Table 6. Aggregate assessment of the motivational potential of work in the surveyed company

Specification	Result of the aggregate assessment	Category
Motivators	2.74	Useable condition C
Hygiene factors	3.57	Condition of high usability B
Demotivators	2.47	Condition of high usability B
Company categorization	BBC	Condition of high usability

Source: Author's own elaboration.

A detailed summary of the assessment of the motivational potential of work in the surveyed company can be found in Table 6, which illustrates the categorization of particular assessment criteria in order: hygiene factors and demotivators within the area of high usability, and motivators obtaining category C as useable (see Table 6).

Graphic presentation of the obtained test results in Figures 1, 2 and 3 allows forecasting of practical corrective actions in the examined company. The assessment of motivation factors in the area of particular features of demotivators may contribute to the modification of the existing code of ethics

in the examined company, or the development of a completely new one, which will include activities concerning, among others, anti-harassment policy, and will also specify support in the event of tasks too difficult for employees to perform. In the area of motivators, criteria of praise, awards or other expressions of appreciation by superiors towards employees will be extracted, but also a professional improvement plan and work schedule ensuring the ability to perform tasks will be defined; a clear personnel policy creating a sense of employment stability is not without significance.



Figure 1. Aggregate result of the average assessment of the motivational potential of work of motivational factors

Source: Author’s own elaboration.

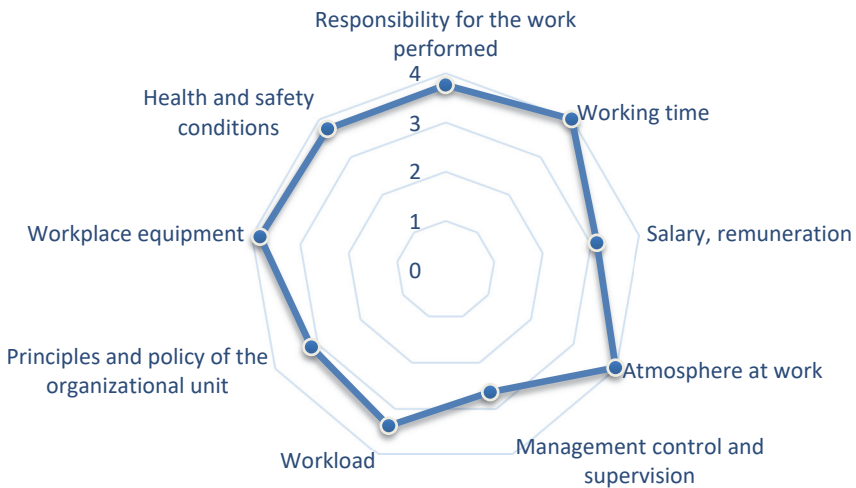


Figure 2. Aggregate result of the average assessment of the motivational potential of work of hygiene factors

Source: Author’s own elaboration.

The practical goal of the research was to identify the innovation capacity gap. During its measurement, a state of divergence was determined and directions and ways of levelling were indicated (see Figures 1, 2, 3).

A detailed analysis of the collected research results indicates that against the background of three motivational criteria (motivators, hygiene factors and demotivators) there are areas that in the human resource management process of the surveyed company require awareness and structuring in internal documents. It seems important to mention Sikorski's view here (Sikorski, 2004, pp. 21–34), which distinguishes three types of employees:

- an economic worker who pays attention to maximizing material benefits from work, even at the expense of additional effort. People who carry out relatively simple work, in different and not always good conditions, are most motivated by favourable economic stimuli;
- social worker values interesting work and good working conditions. He considers interpersonal (including informal) bonds as being important as remuneration, which can facilitate the performance of work and increase his appreciation. Such an employee wants to perform quite complex work, not narrowly specialized, independently and takes responsibility for decisions made;
- self-fulfilling employee appreciates the value of work itself. He is motivated by the type of work, manner, form of execution and degree of utilization of his potential in work. He expects the work to be interesting, suited to his predispositions and abilities, non-stereotypical and non-routine, requiring professional imagination and intuition. The very effects of work, freedom and the way they are achieved give him great satisfaction.

The above description does not mean that such a division of employees exists in every company; however, it allows broadening of identification of motivating factors related to the specifics and types of activities, complexity and degree of interest in the subject of work. In relation to the data presented graphically in Figures 1, 2 and 3 of this study, it is the areas of motivators, i.e. praise, awards, recognition, flexible working hours, training, promotion opportunity, stability of work that would constitute a space that would be important in terms of the type of competence which particular employees bring with them (see Figure 1). The second special area of concentration in the studied company is the work potential accounted for by demotivators, where there are anxieties of respondents related to harassment, nepotism, public and/ or unfounded criticism, tasks too difficult to perform, loss of bonus or part of remuneration (see Figure 3). As it has already been emphasized, settlements included in the regulations are necessary in this respect.

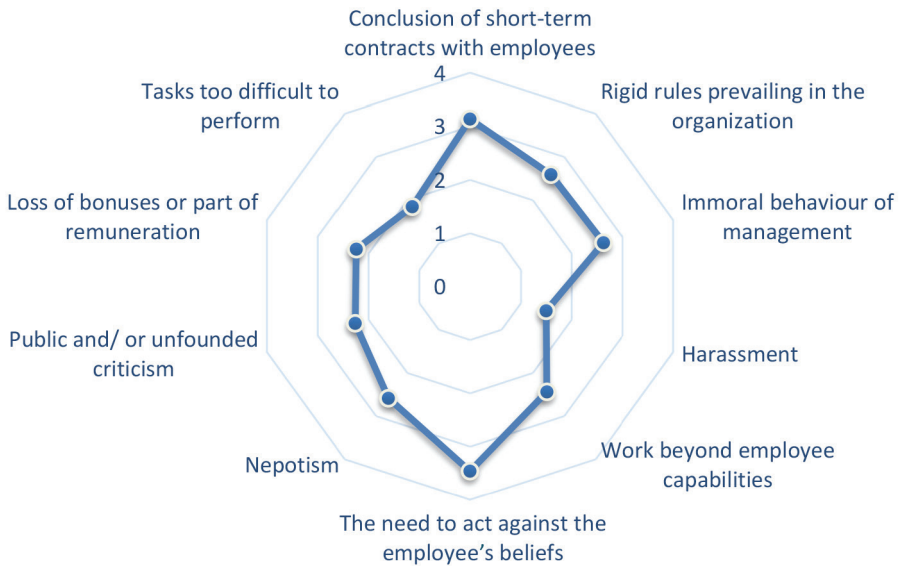


Figure 3. Aggregate result of the average assessment of the motivational potential of work of demotivating factors

Source: Author's own elaboration.

## 6. Conclusion

The basis for the concept of analyzing and reconstructing the motivational potential of work is the process of raising and shaping the competences and motivations of employees' work as well as the knowledge accumulated by the company in the process of organizational learning, which skills, abilities and commitments allow effective and sustainable use of the potential of work for its ongoing activities. This process, causing a change in the behaviour of the above-mentioned entities (employees, organizations and external stakeholders) now, and especially in the future, will prove to be a permanent element of improving the efficiency and competitiveness of the company.

If concepts in the field of motivation to work (more broadly the motivational potential of work) are not only to be more scientifically precise, but also to be used in practice, then a diagnostic system should be available, which on the one hand will be able to capture important components (factors) of the motivational process, but on the other hand it will be transparent and understandable.

Although the overall assessment of the motivational potential of the surveyed company is satisfactory, and even good, the following criteria are poor: stability of work, praise, awards, recognition, training provided by the employer, flexible working hours (see Figure 1) in the area of motivators. This indicates that to a greater extent than before there should be an increase in both the sense of security of employees and also action taken in creating opportunities to develop personal competences through participation in training, which can be understood as an opportunity for professional promotion but also an expression of recognition. It

is also worth extending the reward regulations to include all of the areas defined in this study, understood as work motivation factors. The confirmation of thesis 3 assumed in the presented research should be emphasized, indicating that the motivational potential of work is primarily determined by internal factors.

Taking the above statements into account, one can accept the thesis that it is essential and possible to develop a method of diagnosing a system of motivating employees to work in a company, whose subject and scope of research would include motivators, hygiene factors and demotivation factors. The practical results of these studies should be a premise for improving the incentive system and the basis for appropriate economic pragmatics. The results of research designed in this way may prove useful for the development of the theory of motivation, theory of work potential development, and more importantly, they can be used in the practice of companies and institutions to improve their motivation systems and even work systems of particular companies. As indicated in thesis 1 of this research, the motivational potential of work is not only a function, but also a criterion for assessing the potential of the researched company that allows to dynamize and direct its potential, at the same time it is necessary to emphasize that partial forms of motivational potential of work allow for a broad and aggregate form of analysis (thesis 2 of the described research).

The use of this assessment method in the company's practice, and the information precisely collected through it, can form the basis for modelling the company's development ability and recognizing the company's management pragmatics in this respect.

This concept can be useful especially for companies in the SME sector. However, it has many restrictions. The presented model for assessing the motivational potential of work does not include external factors, e.g. market or institutional factors, which also influence this potential. Barriers to the development of motivational potential of work, and thus determinants of counter-effective work potential, were also not taken into account. Nevertheless, the described methodology for assessing the motivational potential of work seems to be a successful attempt to search for an entrepreneurial and innovative basis for the problems of increasing the organization's productivity, based on knowledge and dynamic innovative abilities.

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## Ocena motywacyjnego potencjału pracy w przedsiębiorstwie – wyniki badań

**Abstrakt:** Artykuł ma na celu przedstawienie systemu oceny motywacyjnego potencjału pracy w przedsiębiorstwie, ale również rozpoznanie luki innowacyjnej oraz wskazanie, jak ją niwelować. Powyższy pomiar przeprowadzono w formie agregatowej, polegającej na łączeniu w całość pojedynczych kryteriów oceny. W badaniu przyjęto przedziały hierarchiczne modelu motywacyjnego potencjału pracy. Główny problem badawczy został sformułowany jako identyfikacja i ocena motywacyjnego potencjału pracy w badanym przedsiębiorstwie. Przedmiotem analizy uczyniono czynniki wewnętrzne motywacyjnego potencjału pracy, natomiast ich wzajemne odniesienie stanowi działalność i rozwój przed-

siębiorstwa. Ogólna ocena motywacyjnego potencjału badanego przedsiębiorstwa jest zadowolająca, a nawet dobra, jednak słabo wypada realizacja kryterium motywatory, tj.: stabilność pracy, pochwały, wyróżnienia, wyrazy uznania, szkolenia zapewnione przez pracodawcę, elastyczne godziny pracy. Nieodzwonne i możliwe jest opracowanie metody diagnozowania systemu motywowania pracowników do pracy w przedsiębiorstwie, której przedmiot i zakres badań ujmowałby motywatory, czynniki higieny oraz czynniki demotywacji. Praktyczne rezultaty tych badań powinny stanowić przesłankę do skonalenia systemu motywacyjnego oraz podstawę odpowiedniej pragmatyki gospodarczej.

**Słowa kluczowe:** motywacyjny potencjał pracy, motywatory, demotywatory, czynniki higieny



# Behaviours towards creativity of SMEs employees

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**Abstract:** Creativity is a complex phenomenon, a set of skills that allow a different perception of the world and creation of new ideas. The purpose of the paper was to assess some behaviours towards creativity of SMEs employees. The behaviours were analyzed in terms of the characteristics that predispose employees to creative behaviour and selected environmental conditions. In the article the outcomes of the study on the creative behaviour of SMEs employees from the Subcarpathian Voivodeship have been presented. In enterprises, especially small and medium ones, personality traits mentioned in the literature are not always dominant. Experience, persistence, intelligence and knowledge are particularly important for respondents. It is worth emphasizing that there are creative behaviours among enterprises that run various business activities, and that are classified according to different PCA (Polish Classification of Activities), but due to various activity profiles, such behaviours can be described as “medium”. The assessments of respondents’ behaviours in the workplace indicate that most of them can achieve their goals, they are not afraid to take risks and challenges. This can be considered as determinants of creativity.

**Keywords:** business, section, companies, the Subcarpathian Voivodeship, creativity

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## 1. Introduction

In the literature on the subject much is devoted to innovative behaviour of employees (Głód and Kraśnicka, 2015; Wojtczuk-Turek, 2012). The purpose of the paper is an assessment of behaviours towards creativity of employees of the SMEs in the Subcarpathian Voivodeship.

An implementation of the research assignments was carried out among randomly selected 396 companies from various sections operating in the Subcarpathian Voivodeship. The problem raised in the work was included in the question: Are employees taken on in small and medium-sized businesses creative? The premises for the problem are related to the role of creativity in innovative processes in enterprises, building

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a competitive advantage, integration of employees, reducing costs after the implementation of new production improvements, and the development of the standard of living (Szara, 2014). The growing importance of creativity in the economy (mainly in culture) and interest in creative industries are also the premises for the implementation of the problem. The specific objective of the study is to promote behaviour towards creativity. There are also relatively few studies on creativity in SMEs, hence this group of enterprises was considered the subject of considerations. The group was not characterized as there are numerous publications where such characteristics appear.

The paper adopts the hypothesis: in the behaviour of employees, imagination is the characteristic conditioning creativity.

## 2. Creativity in an enterprise

Creativity as a human trait and, at the same time the procedure of bringing to light unknown ideas, is directly associated with undertaking something new that is beyond the pattern and routine. Taking the above into consideration, both individuals and a group of people can be creative. Companies should strive for teams of creative employees who have new ideas as one person, in spite of generating an idea, does not mean much to guarantee its implementation (Pomykalski, 2001, p. 80).

Creativity is a complex phenomenon, a set of certain skills that allow a different perception of the world, creating new ideas, an ability to synthesize and express knowledge (Repetowski, 2008, p. 175).

Creativity precedes innovation; it is a process of developing and expressing innovative ideas to solve problems or meet needs (see Koziół, 2006, pp. 153–154; Szara, 2016).

Creativity is essential to spot problems. It is thanks to creativity that ideas appear (Figure 1), and innovations from them.

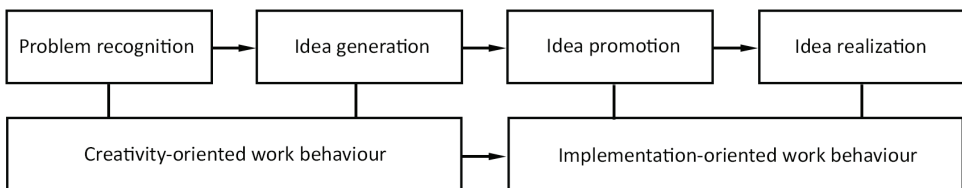


Figure 1. Four stages of innovative work behaviour

Source: Dorenbosch, Engen and Verhagen, 2005, p. 130.

Creativity in Teresa Amabile's theory is formed by professional knowledge, motivation and abilities. Each of the elements interacts with the other and influences innovation. This approach indicates the importance of creativity in creating innovation (Figure 2).

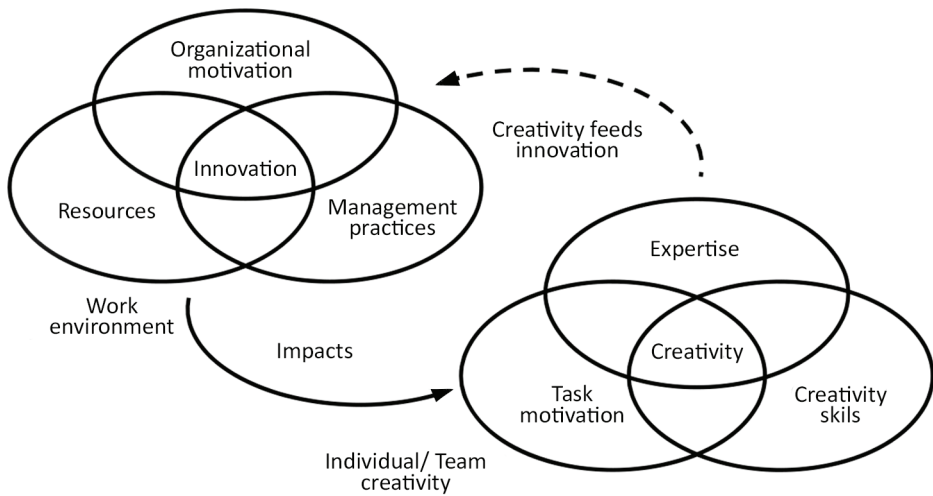


Figure 2. Amabile's componential theory of organizational creativity

Source: Moultrie and Young, 2009, p. 301.

From the behavioural analysis conducted by behaviourists, psychologist Kurt Lewin suggested the equation that was established in social sciences:

$$\text{Behaviour} = \text{Personality} \cdot \text{Environment}$$

Lewin came to the conclusion that our behaviour should be understood as an interaction between two factors: who we are and what we find ourselves in (Miller and Wedell-Wedellsborg, 2014, p. 21).

Robert Sternberg and Todd Lubart created the investment theory of creativity. It concerns the promotion of innovation not only by increasing the creativity potential of employees but the promotion of them being ready to use this potential (Deschamps, 2014, p. 32). The studies of these authors show that people make decisions about creativity based on the results or fear of being rejected by other people.

The behaviours of people towards creativity develop ideas that are turned into innovations. In the case of employees, these ideas come regardless of their position, so they are bottom-ups. They are the results of behaviours that can be described by their action profile. Such a profile of leaders (managers) is described by six attributes which obviously do not occur in case of all managers. Managers activate employees who “usually have their own way of work, instinctively focus either on the creative front of innovation, or naturally follow the executive phase” (Deschamps, 2014, p. 45). An example of the typology of creativity according to Todd Dewett (Table 1).

Table 1. Typology of creativity according to T. Dewett

<b>Problem type</b>	Open	Creativity expected Required solutions for a discovered problem Example: an idea to improve a process—the nature of the result is indefinite Degree of personal risk settlement—moderate	Proactive creativity Voluntary promotion of the solution to the discovered problem Example: a spontaneous suggestion directly related to the work of an individual Level of personal risk settlement—high
	Closed	Responsive creativity Solution to a specific problem required Example: process improvement idea—the nature of the result is defined Level of personal risk consideration—low	Supporting creativity Voluntary promotion of a solution to a specific problem Example: a spontaneous suggestion not directly related to the work of the individual Degree of personal risk settlement—moderate
		Outside	Inside
<b>Sources of engagement</b>			

Source: Dewett, 2004, p. 262.

An evaluation of creativity and creative behaviour is not easy, especially in micro and small enterprises. SMEs enterprises are the most numerous group in the market, they quickly adapt to the environment and are characterized by flexibility of operation in the context of implementing their economic intentions. Also creative employees perform an important role. In addition to personality traits, creativity is favoured by the environment which can be described as the so-called climate for creativity. These are perceived by employees in the workplace, the conditions of their functioning in a particular system: the relationship with colleagues and superiors, mutual trust and openness, as well as conflicts and ways of solving them. Climate is usually a “soft” concept, a metaphor describing the atmosphere prevailing in a group of people, organizations, hence attempts to quantify it may raise doubts (Karwowski, 2009a, p. 11).

Special questionnaires are used to study the conditions for creativity as well as creative behaviour (Ekvall, 1996; Karwowski, 2009b, pp. 23, 55; Kozusznik, 2011). Other research methods are also applied (see studies by Galewski, 2009, pp. 77–105; Karwowski, 2009b, pp. 119–129). Most often in research the method of measuring creative behaviour is used. It is based on proprietary scales; quantitative research, where employees self-assess their creative activity, dominated. They most often refer to the area of pedagogy and psychology and are difficult to compare (see: Szmidt, 2013; Wiszniakowa-Zelinsky, 2014). It is also worth emphasizing that some researchers are more focused on the issues of creativity, i.e. the first aspect of innovative behaviour, although they also “touch” the issues of implementing creative ideas to some extent (Carmeli and Schaubroeck, 2007; Moghimi and Subramaniam, 2013).

An analysis of the world literature on the subject of creative behaviour among employees of enterprises, including SMEs, shows that enterprises are looking for creative employees to obtain specific benefits. These include the situations in which:

- Creativity Brings New Solutions for Difficult Problems;
- creative People Find New Opportunities;
- creativity Ushers Enthusiasm to Learn (Turner and Sanborn, 2019).

A study by Forrester Consulting concluded that “companies that embrace creativity outperform peers and competitors on key business performance indicators, including revenue growth, market share, and talent acquisition.” The same survey found that 69% of those creative firms were winners of “best place to work” awards (Sambandam, 2019).

In fact, a recent Gallup study of more than 16,500 employees shows that the three foundational factors needed to foster creativity in the workplace are all too rare:

- 1) expectations to be creative at work;
- 2) time to be creative;
- 3) freedom to take the risks necessary to be creative.

As a result, businesses are missing value that they should be capturing (Wigert and Robison, 2018<sup>1</sup>).

Creativity and innovation within well-run companies have always been recognized as a sure path to success. Stimulating creativity and exploring completely new and unknown territories results in an increase in the productivity of the organization. Encouraging employees to think outside of the box and giving them time and resources to explore new areas for innovative ideas is the key to cost-effective business solutions. Creative ideas and innovative approaches can come from almost anywhere—from partners, customers, target groups, or employees (Dimitriadis et al., 2018, p. 8).

Richter, Hirst, van Knippenberg and Baer (2012) studied 176 employees in 34 R&D teams in a single multinational organization, examining the relationship between individual creative self-efficacy (belief in their ability to produce creative outcomes) and supervisor-rated individual creativity. They also explored how team level processes mediated this relationship.

It was found that team members Knowledge of Who Knows What and team diversity (regarding professional specialism) mediated the relationship between creative self-efficacy and creativity. That is, team members are rated as more creative when they have self-belief in their creativity, they know what their other team members do and they work within a professionally diverse team.

Yoshida, Sendjaya, Hirst and Cooper (2013) studied 154 teams and found that individual creative performance, as assessed by managerial ratings, was the highest when team members felt a close relationship to their leader and in the presence of a supportive climate for team creativity. This indicates that individual creative performance is part of a complex system that includes leadership behaviours and team climate.

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<sup>1</sup> This article was based on the data from Gallup’s 2017 American Workplace Survey, a Gallup Panel study conducted via the web 19 April – 7 May 2017, with 16,571 full- and part-time employees. The Gallup Panel is a probability-based longitudinal panel of U.S. adults; the sample is weighted to be demographically representative of the U.S. adult population based on the Current Population Survey.

Sung, Cho and Choi (2011) conducted a longitudinal study via 40 executive interviews in a large Korean consumer products company to explore who is involved in the adoption and implementation stages of the innovation process, in a sample of 94 innovations. It was found that the employees who played the major roles in encouraging the organization to adopt an innovation would also remain heavily involved in the implementation of the innovation, as employee-driven implementation was moderately and significantly correlated with employee driven adoption. That is, individuals interact with different organizational innovation processes to influence the success of innovation. It may be argued that this study is not multilevel as the relationships between levels were not subject to quantitative analyses. These individually-focused empirical multilevel studies demonstrate that individual creativity does not occur in a vacuum. Rather, individual creativity unfolds within a complex system that includes the team and environment (Walker and Batey, 2014, p. 120).

Research in enterprises pay attention to individual and team creativity. Not only is the behaviour of employees creative, but also the conditions in which they work (see: McFarlane, 2016). Literature analysis shows that researching creative behaviour is not easy due to the intangible nature of creativity. However, they are needed because of the effects that are the result of human creativity.

### **3. Research methodology and characteristics of the Subcarpathian Voivodeship**

The research was carried out among enterprises of the Subcarpathian Voivodeship. 380 entities constitute the designated sample for all enterprises in the province. The selection of enterprises for the study was random and it was based on the list of companies, while the selection of the respondent in the enterprise was random. In order to prepare the database there were used the followings: the database of portals enabling searching and locating companies by name, sector or area, and the search engine for the Central Registration and Information on Business (CGIB) using searching by the type of an activity (PCA code). Initially, the sample was determined proportionally to the size of enterprise groups according to the size of employment, while difficulties were encountered in obtaining an agreement for the survey. In order to achieve the assumed sample size, an additional random selection was used and a greater than assumed return of questionnaires, i.e. 430 was obtained. The analyzed enterprises constituted 0.26% of enterprises in the Subcarpathian Voivodeship. In the analyzed group there were 155 micro entities (constituting 0.10% of this group separated due to employment), 152 small entities (2.55%), medium entities 89 (7.11%) and large 34 entities (21.66%).

From the group of the entities analyzed, the companies that belong to the so-called creative sector, for which creative behaviours are the basic ones, were excluded deliberately. These enterprises were the subject of another analysis (Szara, 2019).

396 surveys were accepted for the analysis after the elimination of large enterprises. The survey consisted of 15 questions, which were related to, among others, defining creativity, innovation, characterization of dimensions affecting the development of creative capital, determinants of internal and external development of this capital. This study presents the assessment of fea-



tures that are also elements of the employees' personality and a question assessing behaviour at work towards creativity. The research began at the end of 2015 and was completed in March 2016. The basic research methods were used. They included: an analysis, a synthesis, a reduction. The descriptive method was also applied. The data in this study were analyzed using simple statistical measures.

The purpose of the survey was an empirical verification of the author's modified M. Rhodes' model, which was used to assess the level of creative capital (see Szara, 2019).

The measure of creative behaviour of respondents, adopted by the author, refers to the assessment of the possibility of acting in the context of potential creativity, where behaviour towards creativity is explored. The questions describing behaviours towards creativity were established on the basis of the literature on the subject, including creativity questionnaires (Charzyńska and Wysocka, 2015). The descriptions of the questionnaires and measuring scales used can be found in previously cited studies, among others Szmids (2013, pp. 564–666) and Karwowski (2009a, pp. 23, 55).

#### 4. Research results and discussion

52.8% women participated in the study, the others were men. People aged 36–45 dominated (32.1%). Respondents over the age of 45 accounted for approximately 27%, the employees aged 25–35 accounted for 22%. The remaining percentage represented the age range 18–24.

Creativity is a personality trait. For 73.23% of respondents it is an ability to think creatively, broadly understood ingenuity and adaptive flexibility resulting in the ability to find creative, original solutions that go beyond the accepted schemes. It is also the ability to create ideas and a form based on a new approach to existing problems and reinterpreting reality and seeking new opportunities, which 17.68% of respondents chose. However, for 9.09% it meant an attitude, a style of action that allowed overcoming routine, habits, thinking patterns.

61.6% of respondents considered themselves to be creative. About 8.33% had a different opinion, while the others chose the "I don't know" option.

At work, for 36.4% of respondents creativity is a spontaneous form of an idea born and implemented. It is important that 20.5% of respondents said they were a conscious action. For 30.06% it is a way of solving problems, while for 6.57% it is a behaviour forced by the market. For 6.06% of respondents creativity in their work did not matter.

A creative person is described in the literature using a set of features. Respondents were asked which of the features had the greatest impact in their work. The features were rated on a scale: 0 means no, 1 means very little impact, minimal differences, 5 means very high, maximum impact, dominant position.

Experience was the most important feature for respondents (average 4.09), contrary to the case of enterprises in the creative sector where imagination was the dominant feature (Szara, 2019, p. 97). It should be added that knowledge came in the fourth place according to its impact and use (3.89). Intelligence (3.91) came the second, and persistence (3.90) came the third. Values and originality were the least significant features and they obtained the same average grade (3.22) (Figure 3).

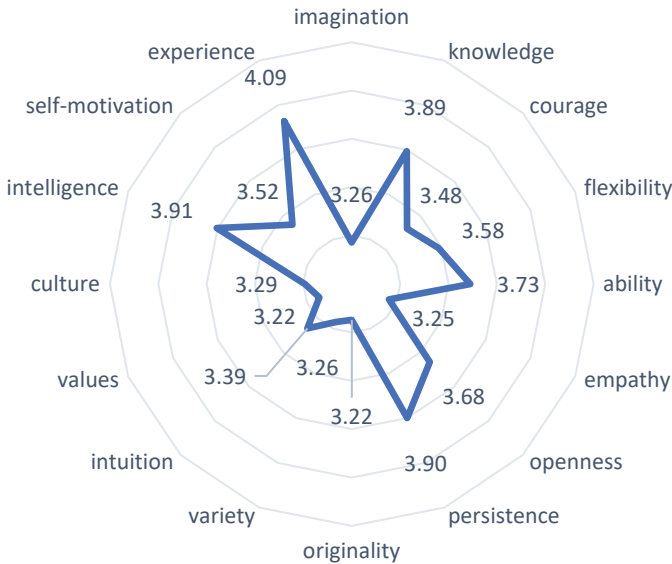


Figure 3. Features that determine the attitude towards creativity

Source: Author's own elaboration.

The most frequently mentioned features of a creative man in literature include:

- imagination (Finke, 1990), which in the case of SMEs employees was underestimated;
- memory—it is believed that creativity requires atypical, alternative and selective coding; it is based on assigning an unusual, rare “identification label” to a remembered object (Nęcka, 2003 p. 68);
- openness which manifests itself, among others, through a critical attitude to professed values, intellectual curiosity, having extensive knowledge in various fields, not being dogmatist or non-conformist (McCrae, 1987). In the presented study this feature was rated the lowest.

Personality and psychological conditions are related to the employee (Mroczo, 2014, p. 46; Poskrobko, 2015, p. 60) and in most combinations these are repetitive features: courage, independence, inquisitiveness, persistence, commitment, responsibility. In the literature presenting psychological or pedagogical research one can find descriptions of these features through the exact characteristics of human behaviour (Nęcka, 2003). The characteristics are also made by systematically ordering the collected data by cognitive, emotional, volitional-motivational, characterological and social functions (Popek, 2001, pp. 49–52). A comparison of own research results is not possible due to different business profiles of entities. The degree and the scope of creativity of employees are determined by numerous factors that can be assigned to three groups. Creativity depends on the following factors:

- on the employee's side, including: personality traits, type and level of education, professional experience;

- related to the nature of the work performed, such as: occupational tasks performed, working conditions, freedom of action, interesting tasks;
- on the side of the organization, e.g. stimulating employee's creativity, motivating creative behaviour, rewarding creativity, way of communicating in the organization, organizational culture or its structure.

The interaction of these factors shapes the aforementioned scope and the degree of creativity of the employee in the area of work (Król, 2015, p. 33).

Table 2. Individual evaluation of behaviour towards creativity (in %)

No.	Specification/ frequency	Never	Occasionally	Often	Very often	Always
1	I can achieve my personal goals at work	9.85	39.39	31.57	13.38	5.81
2	I am not afraid to face challenges at work	9.09	13.38	37.63	28.03	11.87
3	I show originality at work	6.31	27.02	34.85	20.20	11.62
4	I like taking risks at work	12.12	32.83	26.52	21.21	7.32
5	Time pressure does not affect the quality of my work	11.62	27.27	31.57	21.21	8.33
6	They do their work by themselves	5.56	9.60	27.78	29.55	10.35
7	Personal problems do not distract me at work	12.37	29.04	24.24	23.99	10.35
8	My work is diverse	9.34	21.46	34.09	23.74	11.36
9	I'm an optimist	5.56	17.42	30.56	29.29	17.17
10	I work easily in a team	5.05	10.86	31.57	32.58	19.95

Source: Author's own elaboration.

Table 2 shows how the assessment of the intensity of creative behaviour in the occupied position at work was shaped. There was no situation when the employee could not develop creative ideas to solve the problem or did not share knowledge with others. For the most part, the sum of the answers "never" and "occasionally" divided equally to the answers "often", "very often", "always". This meant that half of the employees could achieve their goals at work. The vast majority of employees were not afraid to face challenges at work, and 66.67% showed originality; admittedly at different frequencies, but responses that confirmed this behaviour prevailed. Also in the case of a larger percentage of employees, people took risks in their positions, and time was not a barrier at work. Most respondents did their work by themselves, they did not connect it with personal problems. The fact that the work done by the respondents was diverse was positive for the development of creativity. The fact that most of the respondents were optimistic and did not have problems with teamwork should be assessed positively also for creative behaviour.

In comparison to the creative climate questionnaires used by other authors, the exemplary statements were compiled as the scale (e.g. challenges, freedom, openness, time, etc.) or creative attitudes (nonconformity, neuroticism, extroversion) (Karwowski, 2009a, p. 96). In the case of our own research, there were no groupings due to the fact that the number of questions in the questionnaires of other authors oscillated around 50–60 questions. The assessment of the intensity of creative behaviour made by respondents can be described as average as the answers with the intensity of “often”, “very often” and “always” prevail.

In the PCA section layout, the average answers to the above questions are higher in section J—information and communication, section R where the enterprises from divisions 92, 93 were not included in the creative industries and represented sports and recreational activities. In the comparison of the intensity of creative behaviour in the average value analysis system, the companies representing section M, professional, scientific and technical activities, were the least favourable. This may be due to the situation when enterprises belonging to the creative industries are excluded, hence lower ratings compared to other sections. Lower ratings regarding the intensity of creative behaviour were recorded in the case of section K—financial and insurance activities, B—mining and mining, S—other service activities, C—manufacturing. In the case of entities included in these sections, lower notes are related to the type of activity.

However, it can be seen that in the PCA sections higher average answers characterized the question assessing the behaviour of “easy” teamwork, which positively indicates cooperation for creativity, as well as the question assessing taking up challenges at work. Higher average answers were also noted for the question describing optimistic behaviour.

## 5. Conclusion

This work presents behaviour towards the creativity of SMEs employees. This was done by presenting personality traits and individually assessed behaviour at work stations.

Creativity is a complex phenomenon preceding innovation. It is associated with the personality traits mentioned in the literature, such as: imagination, courage, openness. These features are not always dominant, especially in small and medium enterprises.

The hypothesis adopted in the work is that imagination is the hallmark of creativity in employees’ behaviour. In the case of employees belonging to the SMEs sector, this feature is not so significant. Experience, persistence, intelligence and knowledge are of particular importance for respondents.

Creativity is an activity that occurs among SMEs. Among the enterprises conducting various economic activities, classified into different PCA divisions, creative behaviours occur, which is the confirmation of egalitarian theory of creativity, while due to different activity profiles it can be described as medium-intensity behaviours. This may constitute a scientific research undertaken and an original contribution to science due to the low level of empirical analyses conducted among SMEs regarding the research problem undertaken.

The assessments of respondents’ behaviour in the workplace indicate that most of them can achieve their goals, and are not afraid of risk or challenges. It can be said that these are positive behaviours that result in creativity. In turn, this in enterprises is materialized in the form

of innovation. The research undertaken is extremely difficult due to the intangible nature. It should be noted that employee behaviour is also affected by a number of other factors that have not been presented in this study.

In the own research, which aimed at assessing creative capital in the enterprise, no exact characteristics of innovation was made, which makes it impossible to assess the impact of creative behaviour of employees on the innovation of enterprises. It is very difficult because of individual treatment of creativity. This limitation can be eliminated in future studies.

Distinguishing creative behaviours in various PKD sections may have practical significance related to motivating employees to undertake such activities and translate them into effects. It seems important to use the possessed potential by enterprises, which in the form of creative behaviour occurs in SME enterprises. Due to the author's implementation of similar research among creative sector enterprises, it may be interesting to compare the behaviour of employees of these enterprises and those included in various sections of the PKD, described in this study. This may be the basis for searching for a relationship between the company's membership in the section and the creative behaviour of employees.

The research presented has practical value mainly for business managers. The results of the study may allow taking actions that will contribute to the activation of creative behaviour among employees.

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## Zachowania ku kreatywności pracowników małych i średnich przedsiębiorstw

**Abstrakt:** Kreatywność to zjawisko złożone, zbiór umiejętności pozwalających na inne postrzeganie świata, tworzenie nowych idei. Za cel pracy przyjęto ocenę zachowań ku kreatywności pracowników MŚP. Zachowania analizowano pod kątem cech predestynujących pracowników do zachowań kreatywnych i wybranych warunków środowiska. W artykule zaprezentowano wyniki badania dotyczącego zachowań kreatywnych pracowników MŚP z terenu województwa podkarpackiego. W przedsiębiorstwach, zwłaszcza małych i średnich, nie zawsze cechy osobowości wymieniane w literatu-

rze dominują. Szczególne znaczenie dla respondentów mają: doświadczenie, wytrwałość, inteligencja, wiedza. Warto podkreślić, że wśród przedsiębiorstw prowadzących różną działalność gospodarczą, sklasyfikowanych do różnych działów PKD, zachowania kreatywne występują, natomiast ze względu na różne profile działalności można określić zachowanie ku kreatywności jako „średnie”. Oceny zachowania respondentów na stanowiskach pracy wskazują, że w większości mogą oni realizować swoje cele, nie boją się podejmować ryzyka, wyzwiać, co można uznać za wyznaczniki kreatywności.

**Słowa kluczowe:** biznes, sekcja, przedsiębiorstwo, województwo podkarpackie, kreatywność





# The relationship between work-family conflict and family-work conflict, and self-esteem and emotional intelligence among managers

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**Abstract:** There is no doubt that today professional roles and family life are interpenetrating spheres. The aim of the study was to analyze the relationship between work-family conflict (WFC) and family-work conflict (FWC) as well as emotional intelligence and self-esteem in the group of people employed in managerial positions. Participants were 217 managers (102 women and 115 men). Role conflict has been measured with a Polish version of a questionnaire “Work-Family and Family-Work Conflict Scales” Netemeyer, Boles, McMurrain; emotional intelligence has been measured with Polish “Test of Emotional Intelligence” (TIE) Śmieja and others; self-esteem has been measured with a Polish adaptation of a “Rosenberg Self-Esteem Scale—SES” Dzwonkowska and others. Self-esteem coexists with emotional intelligence of the subjects and is an intermediary variable, mediating in relation to emotional intelligence with role conflicts. The research results show that there are no correlations between role conflicts and the age of the managers, their seniority and the number of directly subordinate employees.

**Keywords:** work-family conflict, family-work conflict, self-esteem, emotional intelligence, manager

## 1. Introduction

Social and economic changes that have been observed in the modern world result in an infiltration of professional and family life. Human being has to play different roles, while success in one of it has an influence on the other ones (Byron, 2005). It has been pointed out that many benefits are connected with combining different roles by both women and men (Barnett and Hyde, 2001; Bańka, 2002; Rostowska, 2009). However, bigger popularity of a professional activity between women and engaging in housework by men causes necessity of choosing of how to deal time, energy and psychological resources between both types of activities. As a consequence, that complication leads to tension and stress (Greenhaus and Beutell, 1985; Demerouti, Geurts and Kompier,

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2004; Clutterbuck, 2003). According to the Conservation of Resources Theory by Steven Hobfoll (1989), psychological stress appears in relation to the risk of losing or losing net resources of a human being. Way of dealing with this stress is strictly related with having resources and ability to use them. One of the varieties of role conflict described in a stress context might be the conflict between working and family requirements (Greenhaus and Beutell, 1985). It can be an acceptable assumption, that resources have a positive influence on decreasing the effects of experienced stress and successful dealing with them, they can also have a positive influence on dealing with working and family role conflicts by an individual. Examples of resources the possession of which contributes to maintaining individual well-being are emotional intelligence and self-esteem (Ogińska-Bulik and Juczyński, 2008). In the studies cited below, the role of emotion perception, regulation and use in coping with stress is raised. Therefore, it turns out justified to establish relationship between role conflicts and emotional intelligence, as well as examining the role of self-esteem as a relatively constant feature possibly mediating the relationship between emotional intelligence and these conflicts. It should be pointed out that in the analysis of research carried out so far, no many studies have been found dealing with the relationship of these constructs with role conflicts (see Akintayo, 2010)—*the first research gap*. Establishing these relationships among managers can, in turn, add value to the study. In the context of the conflict of professional and family roles, this group was not the subject of very broad interest on the part of researchers both in Poland and abroad (cf. e.g. Abbott, De Cieri and Iverson, 1998; Linehan and Walsh, 2000; Martins, Eddleston and Veiga, 2002; O’driscoll et al., 2003; Lapierre and Allen, 2006; Zalewska, 2009; Radkiewicz and Widerszal-Bazyl, 2011; Qu and Zhao, 2012; Kwiatek and Robak, 2013)—*the second research gap*.

Due to the existence of the two *research gaps* described above, the following *research questions* were asked in this article:

Q1. Are role conflicts in the group of managers related to their level of emotional intelligence and self-esteem?

Q2. Does the self-esteem of a person in a managerial position mediate the relationships between emotional intelligence and possible role conflicts?

Q3. Are there any moderators of the relationship between the independent variables and the dependent variable (e.g. age of the examined person, their professional experience in years or the number of directly subordinated employees)?

Based on the literature review, the following *research hypotheses* were made:

H1. The first hypothesis boils down to the statement that in the role conflict plane the level of emotional intelligence of a person working in a managerial position correlates with the intensity of this conflict.

H2. The second hypothesis states that in the role conflict plane the level of self-esteem of a person working in a managerial position correlates with the intensity of this conflict.

H3. Finally, the third hypothesis assumes that the manager’s self-esteem affects the way their emotional intelligence generates the likelihood of role conflict.

## 2. Literature review

### 2.1. Conflicts of professional and family roles—dependent variable

The term *work-family conflict* was introduced to psychology by Greenhaus and Beutell (1985), explaining it in the context of the theory of the role of stress as inconsistent pressures at work and family, occurring when the requirements of one role make it difficult to perform the other. The authors distinguished two forms of such conflict. The first (called the “work-family conflict”; WFC) occurs when the requirements related to professional functioning hamper private functioning and participation in family life. The second type of conflict occurs when family responsibilities make it difficult to perform professional duties (called the “family-work conflict”; FWC). According to the authors, both types of conflicts can be analyzed in terms of behaviour, time and tension. In the case of behaviour, the conflict is related to the requirement for different behaviour in professional and family roles. There is lack of this resource on the time plane, which makes it difficult or impossible to undertake specific forms of activity. The third case is about emotional tension associated with performing a given role, resulting in nervousness or fatigue, which in turn make it difficult to fulfill the obligations associated with the second role. Occupational and family conflict researchers focus on measuring and describing the conflict between the work domain and the family domain—for example, various ways of managing work and family boundaries have been explored, seeking to create harmony and balance between the two domains. Border management has its roots in the concept of border work, which is defined as practices that concretize and give meaning to mental frameworks by placing, maintaining and questioning cultural categories (Nippert-Eng, 1996). To find strategies that minimize the blurring of borders, some researchers focused on the structure of work in time and space (Ahrentzen, 1990; Salazar, 2001). There is a great potential for space between family and work due to difficulties in shifting roles, especially when necessary in an unexpected time frame (Ashforth, Kainer and Fugate, 2000). The conflict between work and family is highest when both work and family roles are very important for the individual (Greenhaus and Beutell, 1985; Cinamon and Rich, 2002). Specific behavioural patterns arising from a role may not be in line with expectations about behaviour in another role. For example, it has been suggested (Schein, 1973) that the male stereotype of leadership emphasizes independence, emotional stability, aggressiveness and objectivity. On the other hand, family members can expect a person to be warm, emotionally sensitive when dealing with them. If a person is unable to adapt their behaviour to perform different roles, they will probably experience conflict between them. The meta-analysis carried out by Allen, Herst, Bruck and Sutton (2000, cited by Zalewska, 2008) regarding the negative effects of the conflict of professional and family roles leads to several important conclusions. First of all, the negative impact of conflicts of professional and family roles on life satisfaction (−0.28), marriage (−0.23) and family (−0.17) was observed. Role conflicts exacerbate family-related stress (0.31). In terms of professional functioning, they reduce job satisfaction (−0.24) and commitment to the organization (−0.23), stimulating the intention to quit work (0.29), level of work-related stress (0.41) and burnout (0.42). These phenomena are detrimental to health, contributing to general tension (0.29), intensifying somatic symptoms (0.29) and correlat-

ing with depression (0.32). In Baka (2013) research conducted in Poland, he found a significant relationship between high level of role conflicts and occupational burnout. In other Polish studies, Chodkiewicz and Hauk (2012) found a relationship between these conflicts and workaholism. As moderators of the relationship between conflicts and their effects, Zalewska (2008) indicates: the characteristics of a person—gender, personality traits, age, having children, economic and social status, type of work and unemployment rate.

## 2.2. Emotional intelligence—independent variable

There are two main ways of understanding the concept of *emotional intelligence* in the literature (Matzcak, 2006). The first of these is commonly known as the Salovey and Mayer *ability model* (1990). The second is *mixed models*, introducing personality traits to the concept of emotional intelligence (e.g. Bar-On Model, cf. Bar-On, 1997). The Salovey and Meyer model will be briefly discussed, because it is based on the tool used in the study (Test of Emotional Intelligence—TIE). These authors divide emotional intelligence into four separate constructs (Salovey, Mayer and Caruso, 2004). First, in their opinion, basic and necessary for the occurrence of emotional intelligence is emotional perception and expression understood as the ability to identify and express one's own emotions, as well as to perceive the emotions of others. The second area is emotional support for thinking, sometimes called the use of emotional intelligence, consisting of supporting creative thinking and problem solving. The third area is emotional understanding that is closely related to the cognitive processing of emotions. Finally, the fourth area is managing emotions (emotional regulation), associated with controlling and managing emotional responses of both your own and others. Despite the significant popularity of this construct in mass public perception, there is still relatively little scientific research confirming the role of emotional intelligence as an important predictor of life success and effective human functioning (Matzcak, 2007). Research confirming the positive effects of emotional intelligence on professional functioning can be found (cf. e.g. Abraham, 2000; Fox, 2000; Fox and Spector, 2000; Caruso and Wolfe, 2001; Charbonneau and Nicol, 2002; Lopes, Salovey and Straus, 2003; Carmeli, 2003; Lyons and Schneider, 2005; Goleman, Boyatzis and McKee, 2013), although these relationships with emotional intelligence should be considered weak. There is a confirmed relationship between higher levels of emotional intelligence and better coping with stress and the effects it causes (Ciarrochi, Deane and Anderson, 2002; Jain and Sinha, 2005; Johnson and Spector, 2007; Ogińska-Bulik and Juczyński, 2008; Jaworska and Matczak, 2008; Baka, 2013). There is also a positive relationship between emotional intelligence and better functioning in social situations and more effective coping with relationships (Salovey and Mayer, 1990; Mayer and Salovey, 1997; Barnett and Hyde, 2001; Ciarrochi and Chan Bajgar, 2001; Ciarrochi et al., 2002; Van der Zee et al., 2002; Lopes et al., 2003; Maruszewski, 2008). Polish studies of the management team (Wojtowicz, 2010; Wrzosek-Brodiuk, 2009, cited by Śmieja, Orzechowski and Asanowicz, 2012) showed a higher level of emotional intelligence of managers (in all subscales) than in the control group. Literature in the field of work and family provides theoretical (and indeed empirical) grounds for explaining many divergent views on this issue. The results indicate that emotional intelligence acts as a protective factor for well-being in the face of a work-family conflict (Lenaghan, Buda and Eisner, 2007).

### 2.3. Self-esteem—independent variable

This is one of the most frequently discussed issues in psychology (Szpitalak and Polczyk, 2015). Despite the definition discrepancies, the term literature uses is *self-esteem* instead of *self-worth* (Kofta and Doliński, 2006). In the field of self-esteem, special attention should be paid to the scientific achievements of Morris Rosenberg (1965, cited by Szpitalak and Polczyk, 2015), which is widely used all over the world (especially the method of declarative self-esteem and Rosenberg Self-Esteem Scale, SES) (Łaguna, Lachowicz-Tabaczek and Dzwonkowska, 2007). According to Rosenberg, therefore (1989, cited by Dzwonkowska et al., 2008) the situational context or the level of social approval and acceptance, although it may change in response to events, are slow and gradual in terms of changes at the base level. Therefore, self-esteem should be considered as a construct by its very nature subjective, based on perception and self-esteem and connected with the belief that one is “good enough and valuable”, which of course does not have to mean a sense of being better than others (Anastasi and Urbina, 1999, cited by Dzwonkowska et al., 2008). Research indicates strong relationships between self-esteem and the emotional functioning of the individual (Dzwonkowska et al., 2008). High self-esteem can be a buffer that protects against stress and constitutes an important resource of the individual supporting coping with stressful situations (Baumeister et al., 2003; Fecenec, 2008; Szpitalak and Polczyk, 2015). It also positively influences the initiation of new social relations and better adaptation to changes (Twenge, 2007, cited by Dzwonkowska et al., 2008), as well as motivation to take action and perseverance in their implementation (Baumeister et al., 2003; Wojciszke, 2015; Dzwonkowska et al., 2008). Both emotional intelligence and self-esteem can be important resources for the individual, supporting their adaptation, positive relationships with other people, as well as supporting the implementation of their goals. Proponents of the trend that describes emotional intelligence in mixed models (e.g. Bar-On, 1997) consider self-esteem as its component. In turn, capacity model propagators see important relationships between these constructs. Correlations between them, obtained in questionnaire and test studies, were 0.41 and 0.31, respectively (Ciarrochi et al., 2000, cited by Matczak and Knopp, 2013). The relationship of both variables can be twofold. On the one hand, emotional intelligence contributes to the success of the individual, which increases his self-esteem. On the other hand, emotional intelligence as a moderator of the impact of successes and failures may affect their subjective assessment, strengthening the strength of positive events in emotionally intelligent people and weakening the impact of negative events (Matczak and Knopp, 2013). It should be remembered that, according to some researchers, the direction of this relationship is reversed. In their opinion (Matthews et al., 2002, cited by Matczak and Knopp, 2013; Petrides and Furnham, 2001), high self-esteem influences the achievement of high results in self-description questionnaires of emotional intelligence, and emotional intelligence is a manifestation of high self-esteem rather than shaping her factor. In the Polish research cited by Matczak and Knopp (2013), relationships between self-esteem and emotional intelligence confirm their positive correlation.

### 3. Research methodology

#### 3.1. Participants

217 randomly selected people employed at managerial positions at various levels, using the social networking site with the LinkedIn business profile took part in the research. The age of the subjects was ranged from 25 to 60 years ( $M = 40.18$ ,  $SD = 6.41$ ). The share of women and men in the sample was 47% and 53%, respectively. The survey covered 13 voivodeships. Managers from the following voivodeships were the largest group: Mazovian (40%), West Pomeranian (11%) and Lesser Poland (9%). Regarding the professional status of the respondents: (1) 87 of them were employed at mid-level directorships, (2) 76 were lower managers, and (3) 54 senior managers (board members, presidents, owners). The average professional experience in the group was: (1) almost 4.5 years in the current managerial position ( $M = 4.49$ ,  $SD = 4.19$ ), (2) nearly 10 years in total in managerial positions ( $M = 9.97$ ,  $SD = 5.76$ ) and (3) over 17 years of total work experience ( $M = 17.22$ ,  $SD = 5.56$ ). The size of companies with which the respondents were associated was very diverse. Most worked in large companies (employing over 250 employees)—50% of respondents. 24% worked in medium-sized enterprises (employing between 50 and 250 people), and 17% were employed in small enterprises (employing between 10 and 49 employees). The remaining persons (9%) were associated with micro companies (employing up to 9 employees). On average, the manager participating in the study managed nearly 10 people ( $M = 9.79$ ,  $SD = 11.44$ ). Participation in the study was voluntary and did not include any form of compensation.

#### 3.2. Research tools

##### 3.2.1. Conflicts of professional and family roles

In the study of two types of conflicts (WFC and FWC), the Polish version of “Work-Family and Family-Work Conflict Scales” questionnaire by Netemeyer, Boles, McMurrian (1996) was used. This tool consists of 10 statements—five for each type of conflict. For example, the statement “The demands of my work interfere with my home and family life” refers to the work-family conflict. However, the sentence “The demands of my family or spouse/ partner interfere with work-related activities” is an example of a statement regarding the family-work conflict. The questionnaire operates on a seven-point scale of answers from “I strongly disagree” to “I strongly agree”. The greater the severity of a given conflict, the higher the result obtained by the person participating in the study. The selected tool has appropriate statistical parameters. Cronbach’s  $\alpha$  reliability coefficients for the WFC and FWC scales for the Polish version of the tool were 0.94 and 0.80, respectively (Zalewska, 2008). The reliability coefficient, estimated in the examined sample by Cronbach’s  $\alpha$  statistic, was: (1) 0.93 for the scale of WFC and (2) 0.90 for the scale of FWC.

##### 3.2.2. Emotional intelligence

To assess emotional intelligence, the Test of Emotional Intelligence—TIE (Śmieja et al., 2012) was used, which enables the assessment of four dimensions of emotional intelligence

according to the model of Mayer and Salovey (1997) and the general level of emotional intelligence as the sum of results in subscales. It consists of 24 test items. A computer programme is used to calculate the results. After calculating them, the researcher receives five results (four subscales and an overall rating), characterizing the emotional abilities of the person taking part in the study. The test time is limited to 30 minutes. In addition, an individual participating in the study may receive an individual report containing a description of the results obtained, to the e-mail address provided. The tool is an aptitude test based on expert criteria, which allows to indicate better and worse answers, i.e. those that more or less match the described situation. An important advantage of TIE, compared to self-description tools, is less susceptibility to distorting the result by factors related to low or high self-esteem and the need for social approval. The tool has good psychometric properties, reliability and theoretical validity, which determined its choice. The reliability of the entire test estimated by Cronbach's  $\alpha$  statistic was 0.88. Half-reliability was calculated using the Spearman-Brown coefficient. For the entire test it was 0.90. (Śmieja et al., 2012). The reliability of the entire test in the examined group was:  $\alpha = 0.78$ .

### 3.2.3. Self-esteem

The level of self-esteem of persons participating in the study was checked by the Polish adaptation of the Morris Rosenberg method—SES Self-Esteem Scale (Dzwonkowska et al., 2008). The questionnaire consists of 10 statements. This method is used to measure the overall level of self-esteem revealed in the self-description, which is treated as a relatively constant feature. The advantages of this method include simplicity and ease of use, and relationships with other tools (Blascovich and Tomaka, 1991). The reliability of the Polish version, calculated using the Cronbach's  $\alpha$  index, amounted to 0.81 to 0.83 for various standardization groups (Dzwonkowska et al., 2008). The reliability of the measurement in the examined group was:  $\alpha = 0.82$ .

## 3.3. Research procedure

People who expressed interest in taking part in the study via LinkedIn received a total of two self-report questionnaires by paper-pencil and an e-mail link to the online test (TIE) posted on the website <http://www.kop.edu.com/>. The collected data was used as research material to conduct the analysis discussed in this paper.

## 4. Results

### 4.1. Main relationships between variables

The main relationships between the variables result from the *r-Pearson* correlation, the results of which are presented in Table 1.

Table 1. Means, standard deviations and correlations for the examined variables

No.	Variable	M	SD	1	2	3	4	5	6	7	8	9
1.	Age	40.18	6.41	-	-	-	-	-	-	-	-	-
2.	Seniority in the current position	4.49	4.19	0.35**	-	-	-	-	-	-	-	-
3.	Managerial seniority	9.97	5.76	0.75**	0.47**	-	-	-	-	-	-	-
4.	Seniority in general	17.22	5.69	0.91**	0.35**	0.77**	-	-	-	-	-	-
5.	Number of directly subordinate employees	9.79	11.44	0.04	-0.08	0.01	0.08	-	-	-	-	-
6.	Satisfaction with current job	5.44	1.32	-0.05	0.04	-0.12	-0.05	-0.07	-	-	-	-
7.	Emotional intelligence	29.90	4.50	-0.12	-0.10	-0.05	-0.10	-0.03	0.05	-	-	-
8.	Self-esteem	33.55	4.25	-0.07	0.01	-0.02	-0.08	-0.05	0.32**	0.27**	-	-
9.	Work-family conflict	18.69	8.07	0.14	0.13	0.12	0.11	0.03	-0.17*	-0.02	-0.15*	-
10.	Family-work conflict	11.31	5.71	0.09	0.03	0.03	0.03	0.11	-0.07	-0.18**	-0.19**	-0.39**

\*  $p < 0.05$ , \*\*  $p < 0.01$

The correlation records contain only decimal numbers.

Source: Author's own elaboration based on research results.



## 4.2. Self-esteem as a mediator of relationships between emotional intelligence and role conflicts

Barron and Kenny model (1986) was used for the mediation analysis. According to this model: (1) mediation analysis is about demonstrating that the explanatory variable is a predictor of the mediator; (2) the mediator should be the predictor of the explained variable when controlling the impact of the explaining variable. Mediation is confirmed in the analysis by: (1) fulfilling the condition of statistical significance of  $\beta$  values for paths A and B, and (2) obtaining different values of  $\beta$  paths C and C'. The indirect impact was calculated in the analysis of Hayes macros (2013) using bootstrapping—a nonparametric method based on multiple draws with returns. For each sample drawn, indirect influence is calculated and its distribution created. If the mean confidence interval of this distribution does not contain zero, it is assumed that the indirect influence is different from zero. In the case of H3, to confirm it with regard to role conflict, data analysis should have shown that: (1) emotional intelligence is a predictor of self-esteem (path A), (2) self-esteem is a predictor of role conflict, while controlling the effect of emotional intelligence on the role conflict (path B), and (3) the relationship between emotional intelligence and role conflict (path C) will change significantly taking into account self-esteem (path C'). A graphic representation of mediation analyses for FWC and WFC is presented in Figures 1 and 2.

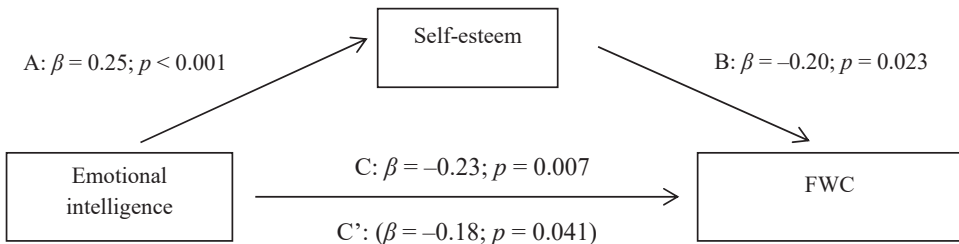


Figure 1. Self-esteem as a mediator of the relationship between emotional intelligence and family-work conflict

Source: Author's own elaboration.

Mediation analyses have shown that there is a direct (path C') and indirect (path A×B) relationship between emotional intelligence and FWC. A higher level of emotional intelligence may be a determinant of higher self-esteem (path A), and a higher level of self-esteem may reduce the FWC (path B). In turn, a higher level of emotional intelligence can globally reduce the FWC (path C), but the direct effect (C') is weaker if we consider its indirect impact through self-esteem as the mediator of this relationship (C'). Therefore, the analysis confirmed the existence of a statistically significant mediation effect of self-esteem on the relationship between emotional intelligence and the FWC;  $\beta = -0.05$ ; CI  $[-0.12; -0.01]$ . The mediator explained over a fifth of the whole effect (PM = 0.22). The significance of the model was also confirmed by the Sobel test ( $Z = -2.26$ ;  $p = 0.02$ ).

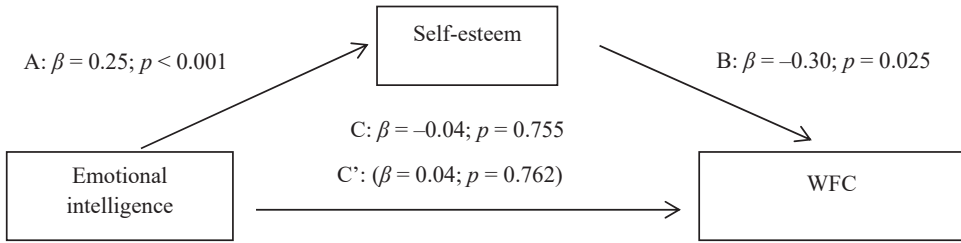


Figure 2. Self-esteem as a mediator of the relationship between emotional intelligence and work-family conflict

Source: Author's own elaboration.

In the case of the model explaining the WFC variable, the total effect is not statistically significant, however, some contemporary theorists suggest that this assumption should be omitted before measuring indirect effects, especially if there are theoretical premises behind them (Hayes, 2009; Rucker et al., 2011). The analysis showed the existence of a statistically significant mediation effect of self-esteem on the relationship between emotional intelligence and the WFC;  $\beta = -0.08$ ; CI  $[-0.18; -0.02]$ . The Sobel test was at the level of statistical tendency ( $Z = -1.93$ ;  $p = 0.053$ ), but it must be remembered that it is more conservative than bootstrapping.

## 5. Discussion

The aim of the study was to analyze the relationship between conflicts of professional and family roles and emotional intelligence and self-esteem in the group of people employed in managerial positions. Additionally, it has been checked whether people's self-esteem mediates relationships between emotional intelligence and possible role conflicts, as well as whether possible moderators of dependencies between variables exists.

### 5.1. Relationships of professional and family role conflicts with emotional intelligence

The first hypothesis (H1) assuming correlations between the level of emotional intelligence and the level of intensity of role conflicts was confirmed partly in the study. There is a direct negative correlation of emotional intelligence with the FWC ( $r = -0.18$ ;  $p = 0.007$ ). It is true that when analyzing the relationship between emotional intelligence and WFC, the direct and total effect is not statistically significant ( $r = -0.02$ ;  $p = 0.755$ ), but when analyzing the mediation effect of self-esteem, indirect influence (through positive correlation with self-esteem) of emotional intelligence for reducing WFC is visible. The lack of such a direct effect may be the result of other variables that are associated with the level of emotional intelligence and which affect the WFC, and which were not included in the study. Their identification and analysis could be an interesting development of the issue in subsequent studies. The favourable coexistence of higher emotional intelligence with smaller role conflicts is consistent

with the results of other studies presented in this article, which indicate the positive relationships between higher emotional intelligence and better professional and family functioning.

## **5.2. Relationships between work and family role conflicts with self-esteem**

The second hypothesis (H2), which states that in the role conflict plane, the level of self-esteem of a person working in a managerial position correlates with the level of intensity of the role conflict, was confirmed entirely in the study. Self-esteem negatively correlates with the WFC ( $r = -0.15$ ;  $p = 0.024$ ), as well as with the FWC ( $r = -0.19$ ;  $p = 0.006$ ). This result is analogous to other similar studies (mentioned earlier), which confirm the positive impact of higher self-esteem on better coping with stress and the feeling of positive emotions, greater activity in undertaking challenges, perseverance in pursuing goals and motivation, as well as on better resistance to fails. The study also showed the coexistence of higher emotional intelligence with higher self-esteem and a negative relationship between self-esteem and both types of conflict. The existence of a positive correlation between emotional intelligence and self-esteem is also confirmed in other studies that I cite in the article. However, researchers do not agree on the direction of such a relationship (Matczak and Knopp, 2013), which could be the subject of a further research in the future.

## **5.3. Self-esteem as a mediator of relationships between emotional intelligence and role conflicts**

The third hypothesis (H3) saying that the managers' self-esteem mediates the impact of their emotional intelligence on role conflicts has been confirmed for both forms of this conflict. Although for the model explaining the variable WFC the total effect was not statistically significant, indirect effects were measured against theoretical premises. Their analysis confirmed the relationship between emotional intelligence and the WFC. The lack of significant direct and complete effects in this case is most likely the result of additional variables not included in the study, which are affected by emotional intelligence and which exacerbate the WFC. Their establishing and analysis could be an important subject of research in the future.

## **5.4. Moderators between variables**

There were no moderators for role conflicts existence. Such variables as the age of the managers, their seniority and the number of employees directly reporting to them do not constitute variables limiting the conditions of a given role conflict. The lack of this interaction may mean that the analyzed variables affect role conflicts in the same way among both men and women, people working in large and small companies, and enterprises with different business profiles. So, people with higher levels of emotional intelligence should be better at dealing with role conflicts, regardless of these factors. From a practical point of view, this may suggest that training focused on the development of emotional intelligence can be beneficial for alleviating role conflicts, regardless of the demographic factors tested and those related to the type of work. As Zalewska (2008, 2009) indicates, the consequences of role conflict for women and men depend, among others, on the type of work performed and cul-

tural conditions, and the results of various studies taking into account gender as a variable moderating the severity of conflicts are not explicit. It can be assumed, therefore, that among persons in managerial positions, differences in the different understanding of work and family roles, resulting from the traditional ideology of gender roles, are blurred.

## 6. Conclusions

Considering the practical implications of the study, it seems that working on increasing the level of emotional intelligence in a managerial position can support coping with role conflicts. Although the role of the level of self-esteem seems directly more significant in dealing with conflicts of work and family roles by an individual, the positive correlation of emotional intelligence and self-esteem indicates that the “training” of emotional intelligence, understood as an ability that can be developed, can have a positive effect on reconciliation professional and family roles.

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## Związki między konfliktami ról zawodowych i rodzinnych, samooceną i inteligencją emocjonalną w grupie menedżerów

**Abstrakt:** Nie ulega wątpliwości, że współcześnie role zawodowe i życie rodzinne są sferami wzajemnie przenikającymi się. Celem badania była analiza związków między konfliktem praca–rodzina (WFC) i konfliktem rodzina–praca (FWC) a inteligencją emocjonalną i samooceną w grupie osób zatrudnionych na stanowiskach kierowniczych. Uczestnikami było 217 menedżerów (102 kobiety i 115 mężczyzn). Konflikt ról mierzono za pomocą polskiej wersji kwestionariusza „Skale konfliktu między pracą a rodziną i rodziną a pracą” Netemeyer, Boles, McMurrian;

inteligencję emocjonalną mierzono za pomocą polskiego „Testu Inteligencji Emocjonalnej” (TIE) Śmieja i inni; samoocenę mierzono za pomocą polskiej adaptacji „Skali samooceny Rosenberga – SES” Dzwonkowska i inni. Samoocena współlistnieje z inteligencją emocjonalną osób badanych i jest zmienną pośredniczącą, mediującą w związku inteligencji emocjonalnej z konfliktami ról. Wyniki badania pokazują, że nie występują korelacje między konfliktami ról a wiekiem menedżera / menedżerki, ich stażem pracy oraz liczbą bezpośrednio podległych pracowników.

**Słowa kluczowe:** konflikt praca–rodzina, konflikt rodzina–praca, samoocena, inteligencja emocjonalna, menedżerowie

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