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## **From the Editorial Committee**

We are giving you the next 25th (2/2018) issue of the Quarterly of the Faculty of Management of the Rzeszow University of Technology entitled “Modern Management Review”.

The primary objective of the Quarterly is to promote publishing of the results of scientific research within economic and social issues in economics, law, finance, management, marketing, logistics, as well as politics, corporate history and social sciences.

Our aim is also to raise the merits and the international position of the Quarterly published by our Faculty. That is why we provided foreign Scientific Council, as well as an international team of Reviewers to increase the value of the scientific publications.

The works placed in this issue include many assumptions and decisions, theoretical solutions as well as research results, analyses, comparisons and reflections of the Authors.

We would like to thank all those who contributed to the issue of the Quarterly and we hope that you will enjoy reading this issue.

With compliments  
*Editorial Committee*





Michał KLIMEK<sup>1</sup>

## DIFFERENT ASPECTS IN THE SAFETY OF ROAD TRANSPORT

Research terminology regarding the security of civilians and transport security used in source literature refers to a number of conditions. In the course of an analysis, it was observed that the level of security of populations inhabiting a given country area depends on various negative factors, either generated by or resultant from conducted activities, including but not limited to dangers posed by road transport. The objective of the article is to frame a panorama of issues related to the negative influence of road transport-related threats. On the basis of collected empirical data and its interpretation in the light of adopted theoretical assumptions, the author will try to identify and explain the conditions (reasons), types, and directions of changes regarding road transport threat and also explain the state of road safety, road transport infrastructure, safety engineering in transport and psychology of driver of road vehicles. The objective of the article is also to frame a panorama of issues related to the negative influence of road transport-related threats on public safety. On the basis of collected empirical data and its interpretation in the light of adopted theoretical assumptions, the author will try to identify and explain the conditions (reasons), types, and directions of changes regarding road transport threats and present their negative impact on security of the population. It should also be noted that transport should be instrumental human needs, related to the implementation of specific tasks, its objectives and specific objectives. Transport needs are an integral part of the national economy. They also affect the organization and functioning of social life, in which every need to move, both people and goods has a certain meaning. Transport needs reflect the demand for these transport services and are addressed to different systems and forms of transport structures. Knowledge of transport needs plays a fundamental role.

**Keywords:** Road transport, road safety, road transport infrastructure, safety engineering in transport, psychology of driver of road vehicles.

### 1. INTRODUCTION

The current standard of present infrastructure maintenance and the low quality of collective transport stimulate individual car transport growth. The underlying problem of the Polish road network is the lack of motorways and express roads. It is a key factor decreasing transport accessibility of the whole Polish territory and its individual regions. The capacity of connections “between main agglomerations has already been exhausted, resulting in heavy traffic on main state roads”. Due to the importance of the road transport for interna-

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tional exchange and logistic supplies for industry and trade, such shortage of high-capacity roads is becoming one of the most notable risk factors for populations using road infrastructure. Literature review, own observations, pilot studies, and data provided by the Information Processing Institute (OPI) reveal that there are no research studies concerning the relationship between the security of civilians and societies and the negative impact of threats generated by road transport. Hence, there is a need for research in said area and for seeking solutions aimed at improving social and civilian security and reducing the number of dangers posed by road transport.

## 2. THE CURRENT STATE OF ROAD SAFETY

When referring to transport safety, we should first define the present-day road safety situation both in Poland and abroad. The following factors affect road safety: causes of traffic incidents, traffic incident rates, users as a determinant of the safety situation, amongst them drunk and intoxicated drivers, young drivers, pedestrians, children, and road attacks.

Other factors which have a direct effect on the safety situation are road environments and vehicles. The determinants of driver reaction and behaviour while on the road are factors affecting road characteristics. Speed also has an effect on the level of direct risk. Given the foregoing, a series of actions has been designed to improve safety in general communications and transport. These include government administration and competent government departments. In the context of the ways of shaping road safety, we need to take into account the relations between the following: vehicles, road users, and their environment. Most sensitive areas, including: pedestrian crossings, crossroads, cycling paths crossing a road, roads connecting different nodes, and traffic equipment.

Adequate speed management and physical means forcing drivers to reduce speed wherever needed are preconditioned by speed zones. When speaking of transport safety, we refer to special European Union legal rules and regulations. These regulations apply to the purpose of the evolution and effectiveness of road transport and to the superior systems representing car transport within the EU. What is more, they concern the transport of goods, including strategic and dual-use goods. Road transport in Poland has been integrated with the transport system within the European Union. Community programmes, and amongst them policies related to road safety improvement, are constantly reviewed and subject to impact assessments. Laws also determine the organization of the transport of dangerous goods. They include mainly the forms of transport of dangerous goods, their preparation for transportation, appropriate documentation and labelling. Roads are also used for special purposes, such as pedestrian movements, pilgrimages, or marches. Another example of a special road use involves military transport and actions.

Environmental policy making in the context of transport safety is governed by EU legal protection and a selection of UN documents. They include the following: air, water and soil protection against dangerous consequences of transport-related activities; but also: noise emission protection and waste management in communications and transport. Transport safety is overseen by transport and traffic engineering. It focuses mainly on traffic genesis, measurements, research and analysis, on the creation of traffic road control systems and means of transport by road<sup>2</sup>.

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<sup>2</sup> S. Filary, *Bezpieczeństwo w komunikacji powszechnej i transporcie. Materiał dydaktyczny*, Poznań 2010, p. 3–6.

In Poland, provisions guiding transport regulations derive from laws, regulations and documents of the Ministry of Transport, the National Transportation Safety Board (KRBRD), the Road and Road Transport Department (DDiTD), the General Directorate of National Roads and Motorways (GDDiA), the General Inspectorate Road Transport (GITD), etc.

From the point of view of the structure of the causes of road incidents in traffic engineering, we can distinguish the following three major groups: the vehicle, the road user, and the road environment. On the basis of data collected by the safety authorities, such as: the Police, the Fire Brigade, and the Emergency Ambulance Service, and information provided by transport and insurance companies, we can say that most of road incidents results from a human error. The effect of factors of road environments on road incidents is estimated to be relatively low. The importance of road vehicles defects is also low. According to present-day research, what greatly contributes to the rate of road accidents and collisions (as far as road environment is concerned) is adverse weather and bad roadway condition. The analysis of the results of research into incidents in which road users are involved demonstrates that major errors leading to incidents are:

- failure to yield right of way, ca. 41%;
- jaywalking, ca. 30%;
- incorrect traffic manoeuvre, ca. 31%;
- failure to maintain a safe distance between vehicles, ca. 25%.

However, the results of research conducted in many countries indicate that the actual involvement of road environment defects is much greater than the statistics show. The Road safety in Poland for the year 2017 report contains data regarding the length of new roads and motorways, the number of vehicles, and the consequences and quantity of road accidents.

The development of GAMBIT 2005 – the National Road Safety Action Programme – is an advance in the research concerning the number of accidents and their consequences across individual Polish provinces. It presents the number of accidents caused by drunk drivers, rate of fatalities and injuries in road accidents, rates of fatalities and injuries involving pedestrians, and the number of road attacks. The factors determining the way of driving are as follows: mental and physical characteristics, external factors, psychological features, a set of motivators, the way of driving, the driver's level of persuasion and metrics. Road safety is further predetermined by:

- features of the road environment having a direct effect on transport;
- characteristic features of urban road networks;
- weather conditions;
- road surface condition;
- the effect of speed on the degree of hazards;
- high speed vs consequences of chance events.

Actions aimed at transport safety improvement are conducted by: the Police, the Fire Brigade, and the Provincial Council. The use of roads, pedestrian crossings, nodes and speed zones form a part of the UE transport systems. In addition, we should also take into consideration the vehicle systems of active and passive safety<sup>3</sup>.

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<sup>3</sup> *Ibidem*, p. 9–11.

### 3. ROAD TRANSPORT INFRASTRUCTURE

Road transport infrastructure is also a stimulus for regional economic development. Transport plays a vital role in national economy. And it is not only transport infrastructure that matters. Indicators for measuring road network facilities have great significance, too. Investments in transport infrastructure in EU Member States become a kind of a tool for regional development. However, road facilities within the EU differ from region to region. This is a sign of disproportions in regional development. It is associated with the so-called saturation indicators regarding investments in EU transport infrastructure development. They are constantly analysed and assessed. Road transport network development in Poland is closely related to economic development of its individual regions. Thanks to proper factor identification and impact analysis we can find out about the rates and effects promoting transport infrastructure development. Transport, including local transport, greatly benefits from Polish road network development. Government projects and plans are based not only on analyses and demand, but also on forecasts. Changes in road network availability and traffic volume estimates add to investment projects carried out later across individual provinces<sup>4</sup>.

Transport infrastructure development, including road undertakings, activate regional development in Poland. On the other hand, there are many aspects which indicate that transport infrastructure growth and economic development is noted but at the national level. Statistical analyses demonstrate that the impact of road network development is non-uniform and scattered throughout the country. Transport assumes key functions with regard to economy. The task of road infrastructure is to integrate space, which stimulates economic and human relations. From the economic viewpoint, transport may be regarded as a sub-system necessary to satisfy economic needs. Transport facilitates trade in goods, supplies factors of production, and distributes goods. It is an autonomous section of economy, which allows development of an outlet for raw materials. One of the first studies in the economy of transport focused mainly on good choices regarding location.

The general meaning of infrastructure refers to the total of sub-systems, devices used to properly interpret economy operations. The most important physical features of transport infrastructure relate to the ability to re-locate. Investment characteristics, on the other hand, include a lengthy and costly process of implementation of a road undertaking. Facilities, especially roads and road surfaces, are expensive, which - in addition to time-consuming construction works - requires from users a long-term and goal-oriented planning stage. The selection of appropriate indicators of road monitoring illustrates the scale and quality of transport network facilities. The importance of transport affects choices regarding the location of business undertakings and relocation of industries. Improvements of the transport infrastructure are beneficial not only to business entities but also to households. The effect of transport infrastructure development may refer to industrial production, employment, and employment in a given region. One of the most significant forms in which transport gravely affects economy include the changes it produces with regards to the structure of inter-regional trade. They affect the factors of production, goods and intermediate products, which are located in various regions around the country. Products in the sales centres must account for the cost of transport co-factors, which shape relations between the various areas of

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<sup>4</sup> A. Domańska, *Wpływ infrastruktury transportu drogowego na rozwój regionalny*, Warszawa 2006, p. 7-9.

production. The effect of transport infrastructure depends on diverse factors and various time-frames of research and analyses<sup>5</sup>.

The primary form of transport is car transport by road. Hence its great role in interpersonal communication. We should also note the regional diversity with regard to both infrastructure and its facilities or technical quality. It is a clear sign of developmental disproportions and varying directions of development across the country. Investments in road infrastructure in Poland different in part from those found in other EU countries. They are affected by the symmetry and conditions of equal development of the transport infrastructure network. Modifications in transport infrastructure concern passenger road transport as well as goods road transport. Road transport network development in Poland has greatly contributed to economic development and integration with the EU transport system. Currently, the saturation of the country road network refers to both quantitative and qualitative aspects<sup>6</sup>.

#### 4. SAFETY ENGINEERING IN TRANSPORT

A Safety engineering in transport refers to technical safety, road transport safety management and risk management in transport. In addition, it tackles issues concerning any breaches of or non-compliance with transport safety obligations on the part of government authorities and administration. Owing to the growing number of risks, risk prevention and risk effect on population and society, problems had to be solved through the application of road transport engineering solutions. Safety management is mainly used by transport operators with the intention to increase the quality of the services provided. Nevertheless, the duty to assess risk refers to all bodies related to transport, not only to road transport. The above actions are a result of transport processes<sup>7</sup>.

There are two basic approaches to risk management in various road transport relations: operational (process and professional) and strategic. The former approach involves management on the basis of pre-determined goals, whereas the latter represents a prognostic thinking, strategy building and future plan making. These activities provide for new conditions and enable sustainable development. Finally, methods of transport-related risk assessment include risk estimation and quantification.

#### 5. PSYCHOLOGY OF DRIVERS OF ROAD VEHICLES

In literature regarding the subject, there are also references to theoretical problems of road vehicle driver psychology. When exposed to critical situations on the road, drivers' behaviour and psychology are typical. What is important here are determinants of drivers' operational skills. Distractions are situational determinants of drivers' abilities. Additionally, emotional stress affects drivers' abilities. There is also empirical research concerning the safety of drivers' working conditions. The research involves also the circumstances preceding road accidents and disasters. Additionally, scientific literature accounts for the psychometrical criteria of 'being a good driver'. Ergonomic approaches to driving safety and

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<sup>5</sup> *Ibidem*, p. 10–82.

<sup>6</sup> *Ibidem*, p. 120–154.

<sup>7</sup> K. Chruzik, *Inżynieria bezpieczeństwa w transporcie*, Gliwice 2016, p. 4–94.

psychological aspects of professional drivers and special forces training refer now to the application of road vehicle simulators<sup>8</sup>.

## 6. SUMMARY

Research terminology related to transport, which from the point of view of the economic definition “is a process of production that, in a world of limited resources, shifts or relocates people, goods and energy in space”. In view of the above, transport is a function which allows for a movement of resources from low-demand areas to high-demand places. Thus, “various needs and desires of men” can be satisfied at the same time<sup>9</sup>. Transport fulfils three basic functions<sup>10</sup>:

- the consumption function – which entails meeting the shipping needs by provided transport services;
- the production function – which means satisfying production needs by the provision of transport services, i.e. by creating conditions for business activities, stimulating their operation, and having an impact on market operations and the exchange of goods;
- the integration function – which allows for an integration of the state and the society via transport services.

The fundamental role of transport consist of its function as a provider of services to the remaining branches of national economy. In the case of goods, shipping activities conducted by transport increase their value and – as a part of value of produced and relocated goods – are included in national income<sup>11</sup>.

Economy could never function without transport, for it serves the role of a “blood-stream”. Other equally crucial issues are state energy supply and, with the growth of the Internet and the emergence of the *new economy*, the increasing role of telecommunications. The three policies – energy, transport and telecommunications – are, therefore, of strategic importance and special interest for the state and under its protection<sup>12</sup>. In addition, transport fulfils the following economic functions<sup>13</sup>:

- it is a necessary component of goods supply and distribution (logistic services);
- it increases the spatial reach of the purchasing and the selling markets;
- it is an indispensable element allowing broad-scale industrial cooperation, be it local, regional or global;
- its capabilities ensure mass production coverage;
- it is an essential element that integrates the national economy with the international market;

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<sup>8</sup> J.F. Trelak, *Psychologia kierowców pojazdów drogowych. Teoria i stan badań*, Warszawa 2015, p. 3–24.

<sup>9</sup> J. Burnewicz, *Ekonomika transportu*, Gdańsk 1993, p. 11.

<sup>10</sup> M. Stajniak, M. Hajduk, M. Foltyński, A. Krupa, *Transport i Spedycja*, Poznań 2008, p. 16.

<sup>11</sup> J. Neider, *Transport międzynarodowy*, Warszawa 2008, p. 31.

<sup>12</sup> M. Mindur, *Wzajemne związki i zależności między rozwojem gospodarki a transportem*, Warszawa 2004, p. 139.

<sup>13</sup> J. Neider, *Transport...*, p. 32.

- the availability of transport services is one the primary factors examined when considering new locations of production plants;
- the present transport infrastructure, both linear and nodal, directly affects the development of other types of business activities, such as trade, tourism, services, repairs etc.

The faces of transport are contradictory. On the one hand, it constitutes an undesired element, since – from the point of view of the shipper – It increases transaction costs, generates risks, and requires a number of additional operations. For individual countries or country groups, transport is a source of multiple ecological, investment, social and other problems. On the other hand, one could not imagine global economy, especially in the period of globalization, without a dense network of transport routes and links, allowing various producers, exporters and importers trade contact freedom, irrespective of the location of goods and their prospective owner. World regions having no transport routes or interchanges may not participate in the international exchange of goods or industrial cooperation<sup>14</sup>.

Despite the transformations which have taken place in Poland over the last 15 years, Polish transport continues to be an undeveloped, largely under-invested branch, typically offering entrepreneurs and citizens low-quality services. The greatest challenges to the transport system in Poland include: low-level road traffic security, outdated transport infrastructure which increases the cost of goods shipment and decreases the quality of transport services while reducing citizen mobility and discouraging foreign investors, low efficiency of organizations in charge of investments, high degree of wear posing a serious danger to numerous companies registered in Poland. Low-standard maintenance of present infrastructure and low-quality collective transport do not constitute any alternative to individual car transport<sup>15</sup>.

## REFERENCES

1. Burnewicz J., *Ekonomika transportu*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 1993.
2. Chruzik K., *Inżynieria bezpieczeństwa w transporcie*, Wydawnictwo Politechniki Śląskiej, Gliwice 2016.
3. Domańska A., *Wpływ infrastruktury transportu drogowego na rozwój regionalny*, Wydawnictwo Naukowe PWN, Warszawa 2006.
4. Ficoń K., *Logistyka ekonomiczna. Procesy logistyczne*, Bel Studio, Warszawa 2008.
5. Gołębska E., Kempny D., Witkowski J., *Eurologistyka w zarządzaniu międzynarodowym*, PWN, Warszawa 2005.
6. Filary S., *Bezpieczeństwo w komunikacji powszechnej i transporcie. Materiał dydaktyczny*, Wydawnictwo Wyższej szkoły Bezpieczeństwa, Poznań 2010.
7. Gołębska E., Szymczak M., *Logistyka międzynarodowa*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2004.
8. Jakubczak R., Kalinowski R., Loranty K., *Bezpieczeństwo społeczne w erze globalizacji*, Sie-dlce 2008.

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<sup>14</sup> J. Naidler, *Transport międzynarodowy*, wyd. II zm., Warszawa 2012, p. 11.

<sup>15</sup> G. Szyszka, *Logistyka w Polsce. Raport 2006*, Poznań 2007, p. 81–83.

9. Jaworski J., Mytlewski A., *Funkcjonowanie systemów logistycznych*, Wydawnictwo Wyższej Szkoły Bankowej w Gdańsku, Gdańsk 2009.
10. Korcz A., *Bezpieczeństwo społeczne Rzeczypospolitej Polskiej*, materiał na prawach maszynopisu, <http://adamkorcz.w.interiowo.pl/spol.pdf>.
11. Leszczyński M., *Bezpieczeństwo społeczne a bezpieczeństwo państwa*, Wydawnictwo Uniwersytetu Humanistyczno-Przyrodniczego w Kielcach, Kielce 2009.
12. Mindur M., *Wzajemne związki i zależności między rozwojem gospodarki a transportem*, ITEE, Warszawa 2004.
13. Naidur J., *Transport międzynarodowy*, wyd. II zm., PWE, Warszawa 2012.
14. Neider J., *Transport międzynarodowy*, PWE, Warszawa 2008.
15. Nowacki G., *Potencjalne zagrożenia terrorystyczne dla infrastruktury transportowej*, [in:] *Współczesne bezpieczeństwo społeczne*, ed. M. Kubiak, M. Miękina, Wydawnictwo UPH w Siedlcach, Siedlce 2013.
16. Piasecka A., *Logistyka w wydawnictwie*, Wydawnictwo Biblioteka Analiz, Warszawa 2004.
17. Rysz-Kowalczyk B. (ed.), *Leksykon polityki społecznej*, Wydawnictwo Instytutu Polityki Społecznej UW, Warszawa 2001.
18. Skrabacz A., *Pojęcie, typologia i uwarunkowania bezpieczeństwa społecznego XXI wieku*, [in:] *Współczesne bezpieczeństwo społeczne*, ed. M. Kubiak, M. Miękina, Wydawnictwo UPH w Siedlcach, Siedlce 2013.
19. Stajniak M., Hajduk M., Foltynski M., Krupa A., *Transport i Spedycja*, Biblioteka Logistyka, Poznań 2008.
20. Strategia rozwoju transportu do 2020 roku (z perspektywą do 2030 roku), Ministerstwo Transportu, Budownictwa i Gospodarki Morskiej.
21. Szyszka G., *Logistyka w Polsce. Raport 2006*, Instytut Logistyki i Magazynowania, Poznań 2007.
22. Trelak J.F., *Psychologia kierowców pojazdów drogowych. Teoria i stan badań*, Wydawnictwo UKSW, Warszawa 2015.
23. Warmiński A., *Bezpieczeństwo obrotu towarami o znaczeniu strategicznym* [in:] *Współczesne bezpieczeństwo społeczne*, ed. M. Kubiak, M. Miękina, Wydawnictwo UPH w Siedlcach, Siedlce 2013.
24. Wyrębek H., *Transport w działalności logistycznej*, „Systemy Logistyczne Wojsk” nr 38/2012, Katedra Logistyki WAT.
25. Wyrębek H., *Wpływ polityki regionalnej na bezpieczeństwo regionów* [in:] T. Bąk, Z. Ciekanowski, L. Szot (scientific ed.), *Determinanty bezpieczeństwa państwa*, Państwowa Wyższa Szkoła Techniczno-Ekonomiczna im. ks. Bronisława Markiewicza w Jarosławiu, Jarosław 2014.
26. Wyrębek H., Klimek M., *Uwarunkowanie bezpieczeństwa w transporcie* [in:] *Współczesny marketing i logistyka – innowacyjne rozwiązania*, ed. K. Pieniak-Lendzion, A. Marcysiak, T. Nowogródzka, Wydawnictwo UNITAS, Siedlce 2015.
27. Strategia rozwoju transportu do 2020 roku (z perspektywą do 2030 roku), Ministerstwo Transportu, Budownictwa i Gospodarki Morskiej.



## RÓŻNE ASPEKTY W BEZPIECZEŃSTWIE TRANSPORTU DROGOWEGO

Terminologia badawcza dotycząca bezpieczeństwa ludności cywilnej i bezpieczeństwa transportu stosowana w literaturze źródłowej odnosi się do szeregu warunków. W toku analizy zaobserwowano, że poziom bezpieczeństwa populacji zamieszkujących dany obszar zależy od różnych negatywnych czynników, generowanych lub wynikających z prowadzonej działalności, w tym, ale nie wyłącznie, zagrożeń stwarzanych przez transport drogowy. Celem artykułu jest przedstawienie panoramy problemów związanych z negatywnym wpływem zagrożeń związanych z transportem drogowym. Na podstawie zebranych danych empirycznych i ich interpretacji w świetle przyjętych założeń teoretycznych autor postara się zidentyfikować i wyjaśnić warunki (przyczyny), rodzaje i kierunki zmian w zakresie zagrożenia transportu drogowego, a także wyjaśnić stan bezpieczeństwa drogowego, infrastruktura transportu drogowego, inżynieria bezpieczeństwa w transporcie i psychologia kierowcy pojazdów drogowych. Cel poniższego artykułu stanowi również nakreślenie panoramy zagadnień związanych z negatywnym wpływem zagrożeń, powodowanych przez transport drogowy, na bezpieczeństwo ludności i społeczeństwa. Autor korzystając z zebranych danych empirycznych i ich interpretacji w świetle przyjętych założeń teoretycznych, podejmie próbę wyjaśnienia i identyfikacji uwarunkowań (przyczyn) oraz rodzajów i kierunków zmian zagrożeń powodowanych przez transport drogowy, jak również wskazania negatywnych skutków oddziaływania na bezpieczeństwo ludności. Należy zwrócić również uwagę, że transport należy do instrumentalnych potrzeb człowieka, związanych z realizacją określonych zadań, swoich założeń i sprecyzowanych celów. Potrzeby transportowe stanowią integralną część gospodarki narodowej. Wpływają również na organizację i funkcjonowanie życia społecznego, w którym każda potrzeba przemieszczania się, zarówno osób jak i towarów posiada określone znaczenie. Potrzeby transportowe odzwierciedlają popyt na te usługi transportowe i są adresowane są do różnych systemów oraz form struktur transportowych. Podstawowe znaczenie odgrywa znajomość potrzeb transportowych.

**Słowa kluczowe:** transport drogowy, bezpieczeństwo drogowe, infrastruktura transportu drogowego, inżynieria bezpieczeństwa w transporcie, psychologia kierowcy pojazdów drogowych.

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## SELF-PRESENTATION STRATEGIES APPLIED BY ACADEMIC TEACHERS AT UNIVERSITIES IN RZESZÓW AND THEIR POTENTIAL IMPACT ON STUDENTS: A CASE OF SELF-PROMOTION AND EXEMPLIFICATION

The paper analyzes the application of self-presentation strategies in academic surroundings, and juxtaposes them with potential impact they may have on students. The data presented in the article constitute an excerpt of research on the application of five self-presentation strategies, i.e. ingratiation, intimidation, self-promotion, supplication, exemplification by academic teachers in Rzeszów, Poland, conducted in February and March 2018. Self-presentation, in simplified terms, constitutes the choice of behaviours to intentionally manage the impressions that others form of us, whereas a self-presentation strategy encompasses means of behaviour used to create a desirable image. The study encompasses 100 academic teachers, both men and women, between 26 and 62, employed at universities in Rzeszów. The research conducted by means of an online questionnaire indicated that self-promotion and exemplification were the least frequently applied choices. The rationale behind this result may be found in teacher's reluctance to appear as showing off or being vainglorious. Each of the strategies was covered by 5 questions thematically connected to them. While constructing the questions, it was attempted to adjust them thematically to the strategy in question as strongly as possible. Characteristic features of the two strategies were taken into account while shaping the cognitive reality around a question.

**Keywords:** self-presentation, strategy, self-promotion, exemplification, academic teacher.

### 1. INTRODUCTION

People strive for relatedness. They want to belong to groups of people they care about. Self-presentation is a predominant aspect of social existence, since our outcomes in life are underpinned by our success at making other people believe we have certain characteristics. People we are married to, our friends, colleagues, acquaintances, our performance at work or school, and many others are all contingent upon our abilities and skills to convince our audience that we are worthy of their appreciation, their feelings, their trust, and their respect.

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Interestingly, people are most frequently audiences for their own behaviour, and while endeavouring to convince others that they have certain qualities, they usually also convince themselves. Essentially, people are aware that it is more probable to successfully integrate with those who perceive them positively. To this end, they frequently attempt to establish a favourable impression. Research methodology, aims and limits are described in the following sections.

## 2. PURPOSES AND METHODOLOGY

The data described in the article constitute an excerpt of research conducted in February and March 2018, pertinent to five self-presentation strategies, i.e. ingratiation, intimidation, self-promotion, supplication, exemplification, and their application by 100 academic teachers in Rzeszów, Poland.

The main aim of the research was to check which of the five strategies mentioned above were applied most frequently and what were the potential reasons for choosing these particular strategies – either voluntarily or involuntarily. Therefore the research is largely quantitative in nature. However, since the author also attempted to account for the impact that the said strategies may have on students and their performance, the paper may be deemed qualitative to some extent.

A self-report study based on an anonymous questionnaire – that requires no researcher's interference – was selected as the main method to gain participants' responses. Respondents' answers were located on a slightly modified Likert scale, in a way that respondents might have chosen from six, instead of five or seven answers and no midpoint was provided. The scale presents a symmetry and qualifiers are clearly defined linguistically. Consequently, equidistant attributes are more visible. The study was carried out by means of Google Forms – an online survey tool that enables questionnaire participants to show how strongly they agree or disagree with the statements.

A representative sample of 100 academic teachers, both men and women, between 26 and 62, employed at universities in Rzeszów completed the questionnaire. Each of the strategies covers 5 questions related thematically. While constructing the questions, it was attempted to adjust them thematically to the strategy in question as strongly as possible. Characteristic features of the two strategies (See Table 1) were taken into account while shaping the cognitive reality around a question.

The questions referring to the strategy of self-promotion are:

1. You are discussing something with one of your students. Suddenly you realize that you are not right. Have you ever defended your standpoint, although you knew you were wrong?
2. Have you ever talked to your students about your accomplishments? (e.g. your publications, conferences you participated in... etc.)
3. Have you ever ended a discussion just because you knew you were wrong?
4. Have you ever talked to your students about situations, when you were the one who was right, and the other person was completely wrong?
5. Have you ever deliberately used nomenclature that the students could hardly understand?

The questions referring to the strategy of exemplification are:

1. Have you ever told your students that it is inappropriate to say or do something?
2. Have you ever deliberately made your students feel guilty?
3. Have you ever told your students that presently people lack morals?
4. Have you ever told your students that you would not finish the classes earlier, because it is against the rules?
5. Have you ever told your students that you find it difficult to understand modern youth?

The possible answers were “no, definitely not”, “no”, “rarely (almost never)”, “yes, definitely”, “yes, quite frequently”, and “yes”.

As regards the limits of the research, those are three-dimensional. Firstly, due to its quantitative nature the replies are not in-depth and all-embracing. Secondly, while the Likert scale is applied, respondents may tend to choose answers close to the middle of the scale, perhaps to look less extreme. Also there is a risk that e.g. “yes, definitely”, and “yes” may mean different things to different people. Additionally, it is hard to assess whether the symmetry between “no” and “rarely (almost never)” is of the same kind or ‘length’ as the one between “yes, definitely” and “yes, quite frequently”. Thirdly, there is a risk that a participant gives an answer that they feel should be given in a given context.

### 3. THE NOTION OF SELF-PRESENTATION

In most simplified terms, self-presentation otherwise referred to as impression management, constitutes or, more precisely, reflects the image of our own selves, i.e. the image that we are willing to present. The term, though ubiquitous in common parlance, is neither straightforward, nor unequivocally accounted for.

Self-presentation is a fundamental sign of human social existence that is predicated upon an attempt to communicate who we are or how we want to be perceived, and expressed by dint of our words, non-verbal behaviour, and actions. If the objective of the said actions is to arrive at particular perception of our own selves, one may use the notion of impression management, i.e. ‘the process by which individuals attempt to control the impressions others form of them. Because the impressions people make on others have implications for how others perceive, evaluate, and treat them, as well as for their own views of themselves, people sometimes behave in ways that will create certain impressions in others’ eyes’<sup>2</sup>.

Despite the common view that impression management and self-presentation constitute equivalent terms, there are researchers, e.g. Schlenker<sup>3</sup> postulating a distinction between them. He averred that impression management constitutes an endeavour to control images that one projects either in imagined or projected social interactions, whereas in the case of self-presentation – self-relevant ones. Simultaneously, since impressions may well be governed or managed not only by self-presentation but e.g. other entities such as PR agencies<sup>4</sup>,

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<sup>2</sup> M.R. Leary, R.M. Kowalski, *Impression management: A literature review and two-component model*, “*Psychological Bulletin*”, Washington 1990, p. 34.

<sup>3</sup> B.R. Schlenker, *Impression management: The self-concept, social identity, and interpersonal relationships*, Monterey, CA: Brooks/Cole, 1980.

<sup>4</sup> D.J. Schneider, *Tactical self-presentations: Toward a broader conception* [in:] *Impression management theory and social psychological research*, ed. J.T. Tedeschi, New York 1981.

and conversely individuals may manage the impressions of entities other than themselves<sup>5</sup>, impression management encompasses more than self-presentation.

Also economists such as e.g. Akerlof and Kranton<sup>6,7</sup>, Bénabou and Tirole<sup>8,9</sup> have scrutinized the role of self-image considerations as regards explaining behaviour. For Bursztyn and Jensen<sup>10</sup>, ‘fully identifying and isolating self-image concerns is particularly challenging: we need to analyze behavior in which we are certain that the private cost of expression exceeds any anticipated consequential or social benefits. [...] Many actions that one might undertake are observable by others and may send a signal about one’s type. The type can be any attribute that a person may care about, whether economic, social, political or religious, just to name a few examples.’

To recapitulate, the approach adapted in this paper concurs in the recognition presented by Mark R. Leary and Robin M. Kowalski<sup>11</sup> that impression management should only be viewed as fostering impressions in others' eyes. The author of this paper, as a linguist, also supports Leary’s perspective that the notion should not be considered only in semantic terms, since there are certain conceptual constraints that preclude perceiving private self-images and public impressions as equivalent terms. Both the terms are appropriate simultaneously only while elaborating on the way individuals control the impressions other people form of them, and only then can be applied interchangeably.

#### 4. SELF-PRESENTATION STRATEGIES

As averred by Schlenker<sup>12</sup>, researchers emphasize that there is an interplay between social and individual levels in self-presentation, i.e. individual goals affect the social ones. People strive for relatedness, i.e. they want to belong to groups of people that they care for. Essentially, people are aware that it is more probable to successfully integrate with those who perceive them positively. To this end, people frequently try to establish a favourable impression. Notwithstanding, individual goals may sometimes be conducive to self-presenting in socially infelicitous ways<sup>13</sup>. People may self-deprecate so that others’ expectations are lowered, or endeavour to seem intimidating to trigger fear.

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<sup>5</sup> M.R. Leary, R.M. Kowalski, *Impression management: A literature review and two-component model*, “Psychological Bulletin”, Washington 1990, p. 34.

<sup>6</sup> G.A. Akerlof, R.E. Kranton, *Economics and Identity*, “The Quarterly Journal of Economics”, Vol. 115/3, Oxford 2000, p. 715–753.

<sup>7</sup> G.A. Akerlof, R.E. Kranton, *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*, Princeton University Press 2010.

<sup>8</sup> R. Bénabou, J. Tirole, *Intrinsic and Extrinsic Motivation*, “The Review of Economic Studies”, Vol. 70/3, London 2003, p. 489–520.

<sup>9</sup> R. Bénabou, J. Tirole, *Incentives and Prosocial Behavior*, “American Economic Review”, Vol. 96/5, American Economic Association 2006, p. 1652–1678.

<sup>10</sup> L. Bursztyn, R. Jensen, *Social Image and Economic Behavior in the Field: Identifying, Understanding, and Shaping Social Pressure*, “Annual Review of Economics”, Vol. 9/1, Palo Alto, USA, 2017, p. 131–153.

<sup>11</sup> *Ibidem*.

<sup>12</sup> B.R. Schlenker, *Self-presentation* [in:] *Handbook of Self and Identity*, eds. M.R. Leary and J.P. Tangney, New York 2003, p. 492–518.

<sup>13</sup> *Ibidem*.

Quite the other way round, the social level may also influence the individual one, since one's audience determines individual self-presentational goals. For instance, people incline towards being more self-aggrandizing as they encounter strangers and modest as they socialize with friends<sup>14</sup>. Psychological studies revealed that individual's private self-concept may be influenced by person's self-presentation to other people, which constitutes a conspicuous evidence that social level influences the individual one<sup>15</sup>. Certainly, for a self-concept to change, one's actions need to be observed by others<sup>16</sup>, which underlines the social component.

The main purpose of self-presentation is to establish certain image in the minds of others. Though the count of resultant impressions may seem close to limitless, Jones and Pittman<sup>17</sup> arrived at a five-partite taxonomy of self-presentational strategies. For the sake of simplicity and conciseness, the said strategies are tabulated below, along with impressions they aim to trigger, prototypic behaviours, and risks.

Table 1. The concept of a five-partite representation of self-presentation strategies

Self-presentation strategy	Impression	Prototypic behaviours	Self-presentational risks
Ingratiation	Likable	Compliments, favours	Insincere, deceitful
Self-promotion	Competent	Boasting, showing off	Conceited, fraudulent
Intimidation	Powerful, ruthless	Threats, blackmail	Reviled, ineffectual
Exemplification	Virtuous, moral, upright	Selflessness	Hypocritical, sanctimonious
Supplication	Helpless, unable	Self-deprecation	Manipulative, demanding

Source: Author's own elaboration.

In further elaboration it is instructive to adduce Baumeister's wording: 'People use self-presentation to construct an identity for themselves. Most people have a certain ideal image of the person they would like to be. It is not enough merely to act like that person or to convince oneself that one resembles that person. Identity requires social validation'<sup>18</sup>.

<sup>14</sup> D.M. Tice, J.L. Butler, M.B. Muraven, A.M Stillwell, *When modesty prevails: differential favorability of self-presentation to friends and strangers*, "Journal of Personality and Social Psychology", Washington 1995, p. 1120–1138.

<sup>15</sup> B.R. Schlenker, *Self-presentation* [in:] *Handbook of Self and Identity*, eds. M.R. Leary and J.P. Tangney, New York 2003, p. 492–518.

<sup>16</sup> D.M. Tice, H.M. Wallace, *The reflected self: creating yourself as (you think) others see you* [in:] *Handbook of Self and Identity*, eds. M.R. Leary and J.P. Tangney, New York 2003.

<sup>17</sup> E.E. Jones, T.S. Pittman, *Toward a general theory of strategic self-presentation* [in:] *Psychological perspectives on the self*, ed. J. Suls, New York 1982.

<sup>18</sup> R.F. Baumeister, *The self* [in:] *The Handbook of Social Psychology*, eds. D.T. Gilbert, S.T. Fiske, G. Lindzey, New York 1998, p. 705.

## 5. ANALYSIS AND DISCUSSION

### 5.1. The strategy of self-promotion

The strategy entitled self-promotion occurs while people are trying to draw attention to their attainments in order to be regarded as competent or capable. Though seemingly akin to ingratiation, the strategy of self-promotion does not focus on building a likable image. The first part of the research encompassed 5 questions connected to this strategy.

**Question 1** You are discussing something with one of your students. Suddenly you realize that you are not right. Have you ever defended your standpoint, although you knew you were wrong?

Table 2. Distribution of answers to Question 1

Answer	Number of respondents	Percentage
No, definitely not	28	28%
No	53	53%
Rarely (almost never)	15	15%
Yes	4	4%
Yes, quite frequently	0	0%
Yes, definitely	0	0%

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

As tabulated, the respondents were rather reluctant to carry on persuading their student interlocutor(s) that they were right in their judgment. In consonance with that, 28% and 53% of the respondents claimed that they did not defend their vantage point on purpose despite being wrong. Merely 4% of the academic teachers decided to have proceeded with the conversation, and 15% claimed to have done it rather infrequently. Such a distribution of answers may be contingent upon a fact that teachers, while self-promoting, want to appear as intelligent and proficient in their dedicated specialist area(s), yet not at the expense of being liked. Moreover, defending one's vantage point despite being obviously wrong, may make the teacher look conceited or fraudulent, which constitutes one of basic risks of self-promoting.

The seemingly trifling case of being liked or disliked also conditions students' performance during classes. When students like the teacher and attend the course willingly, their work and productivity improves<sup>19</sup>. As formulated by Montalvo and Roedel, 'students who dislike the teacher, but try to please the teacher anyway do the same things as students who like the teacher, but the difference seems to be in the amount of effort they put forth, and the quality of their work. Some students indicated that if they did not like the teacher they would turn their work in on time, but it may not be correct. On the other hand, when the students like a teacher and want to please them, they put extra effort into their assignments, have a positive attitude, and try to be more friendly with teachers'<sup>20</sup>. That said, academic

<sup>19</sup> G.P. Montalvo, *Pleasing the teacher: A student perspective*, Unpublished manuscript, 1995.

<sup>20</sup> G.P. Montalvo, T. Roedel, *Pleasing the teacher: A qualitative look*, Paper presented at the annual meeting of the American Educational Research Association, San Francisco 1995.



teachers eschew the strategy of self-promotion, inclining simultaneously towards the strategy of ingratiation, for they prefer to be likable.

**Question 2 Have you ever talked to your students about your accomplishments? (e.g. your publications, conferences you participated in... etc.)**

Table 3. Distribution of answers to Question 2

Answer	Number of respondents	Percentage
No, definitely not	0	0%
No	28	28%
Rarely (almost never)	49	49%
Yes	23	23%
Yes, quite frequently	0	0%
Yes, definitely	0	0%

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

As plotted in the table, 23% of the respondents admitted sharing their achievements with their students, whereas almost half of the respondents were rather reluctant to talk about what they accomplished. Interestingly enough, none of the academic teachers gave an answer that was a definite 'no' or a definite 'yes'. The rationale behind this distribution of answers may be underpinned by teachers' fear of being perceived as boastful, conceited or even vainglorious.

Schlenker and Leary<sup>21</sup> scrutinized the congruence between people's proclamations and performance. Conspicuously, the audience's judgment of competence is predicated upon (if available) performance information. Contrarily, if performance data are unavailable, the judgment is underlain by self-presentational claims of capabilities.

Interestingly, if the self-presentational information is not contradictory, the claims are taken at face value, i.e. if one claims to be competent, the audience assumes this is true. What may be inferred from a strictly self-presentational vantage point is that unless students know that the teacher is purposefully bending the truth, they are likely to give them the so-called benefit of the doubt, and believe their claims. Therefore, reasonably presenting yourself as competent is advantageous.

**Question 3 Have you ever ended a discussion just because you knew you were wrong?**

Table 4. Distribution of answers to Question 3

Answer	Number of respondents	Percentage
No, definitely not	22	22%
No	36	36%
Rarely (almost never)	33	33%
Yes	9	9%
Yes, quite frequently	0	0%
Yes, definitely	0	0%

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

<sup>21</sup> B.R. Schlenker, M.R. Leary, *Audiences' reactions to self-enhancing, self-denigrating, and accurate self-presentations*, "Journal of Experimental Social Psychology", Washington 1982.

As plotted in the table, 9% of the respondents explicitly admitted ending a discussion after finding out they were wrong. 33% of the survey participants did it infrequently, whereas the number of academic teachers who never did that totalled 58%. Admittedly, ending a discussion in that way may result in students no longer perceiving the teacher as an expert. Again, with the strategy of self-promotion, it is attempted to convince others of our competence and capabilities. Notwithstanding, no matter which impressions people endeavour to build, they will come to fruition only if others approve of them.

Schlenker<sup>22</sup> advanced a theory that successful self-presentation is predicated upon two assertions, i.e. beneficiality and believability. The first is pertinent to showing the most advantageous image possible, and the latter to making sure the image you present is believable. Admitting personal limits, faults, and mistakes builds trust and assists students in developing a perception that everybody makes mistakes and being an academic (or any other) teacher does not mean that one is always right and never errs. Furthermore, students' engagement is built through being accountable to them, ergo it is expedient to own one's mistakes. If an academic teacher ends a discussion without providing a good reason, they risk triggering suspicion and inadvertently building a bad impression.

Another important factor in establishing a desirable impression is accountability, which governs the aforementioned believability of a self-presentational claim. Ending a discussion enables the audience – here, the students – to immediately assess the veracity of teacher's proclamations.

**Question 4 Have you ever talked to your students about situations, when you were the one who was right, and the other person was completely wrong?**

Table 5. Distribution of answers to Question 4

Answer	Number of respondents	Percentage
No, definitely not	27	27%
No	39	39%
Rarely (almost never)	28	28%
Yes	6	6%
Yes, quite frequently	0	0%
Yes, definitely	0	0%

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

Interestingly enough, merely 6% of the academic teachers stated explicitly that they were right while someone else was wrong. 28% of the respondents were tentative saying to have done it rather infrequently, whereas a total of 66% did not tell their students about such situations.

A case when someone illustrates their own behaviour against the backdrop of someone else's actions, providing simultaneously a sharp and subjective contrast between what is appropriate and what is not, is indicative of striving to appear as an expert. Essentially,

<sup>22</sup> B.R. Schlenker, *Impression management: The self-concept, social identity, and interpersonal relationships*, Monterey, CA: Brooks/Cole 1980.

people are accountable when their proclamations and actions can be set against relevant facts. Schlenker<sup>23</sup> studied self-presentation and accountability and the research revealed that people are reluctant to present themselves as competent only when they expect to fail and presume the audience can find out they were wrong. In this case, much as students were unlikely to examine teacher's credibility, the participants were not inclined to present themselves as superior by means of this method.

**Question 5 Have you ever deliberately used nomenclature that the students could hardly understand?**

Table 6. Distribution of answers to Question 5

Answer	Number of respondents	Percentage
No, definitely not	30	30%
No	27	27%
Rarely (almost never)	34	34%
Yes	9	9%
Yes, quite frequently	0	0%
Yes, definitely	0	0%

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

As plotted in the table, over half of the respondents never used nomenclature incomprehensible for students, whereas a total of 43% happened to do that. The reason behind it may be found in self-enhancement needs that underpin self-construction. Generally, most people want to think of themselves as competent, eloquent etc. Thus, by convincing others that they are experts in a particular fields, people are more likely to convince themselves. Furthermore, the willingness to self-present is inclined to increase when other people's attention is called to us. Certain stimuli may also make us aware of how we are perceived, on the grounds that they remind us of how we are seen by others<sup>24</sup>. Using nomenclature that the students are not familiar with knowingly may also result in boasting or showing off, which is one of the main risks of this strategy.

## 5.2. The strategy of exemplification

With the strategy of exemplification, it is attempted to create the impression that someone is morally superior, virtuous, or righteous. The second part of the research encompassed 5 questions connected to this strategy.

<sup>23</sup> B.R. Schlenker, *Self-presentation: Managing the impression of consistency when reality interferes with self-enhancement*, "Journal of Personality and Social Psychology", Washington 1975, p. 1030–1037.

<sup>24</sup> C.S. Carver, M.F. Scheier, *Aspects of self, and the control of behavior* [in:] *The self and social life*, ed. B.R. Schlenker, New York 1985.

**Question 6 Have you ever told your students that it is inappropriate to say or do something?**

Table 7. Distribution of answers to Question 6

Answer	Number of respondents	Percentage
No, definitely not	4	4%
No	9	9%
Rarely (almost never)	67	67%
Yes	15	15%
Yes, quite frequently	5	5%
Yes, definitely	0	0%

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

As tabulated, 67% of the respondents were rather tentative and the case when they told their students about the inappropriateness of some actions occurred rather infrequently. However, the total of 20% of the academic teachers appeared to have said that explicitly. 13% of the respondents never decided to have tackled the issue of appropriateness. A situation when an academic teacher talks about inappropriateness, usually results from their dissatisfaction pertinent to students' actions or general performance. The rationale behind that may be found in self-construction, i.e. the willingness to construct a certain identity for ourselves. Frequently, self-construction may also be applied by an academic teacher to confirm a self-view that has already been established, such as acting only in accordance with the rules. Swann<sup>25</sup> refers to this form of self-construction as self-verification, whereas Wicklund and Gollwitzer<sup>26</sup> categorize such behaviour as self-symbolizing.

On the other hand, saying that doing something is appropriate or not, may create an opposite image, especially in the minds of students who do not support the same view.

**Question 7 Have you ever deliberately made your students feel guilty?**

Table 8. Distribution of answers to Question 7

Answer	Number of respondents	Percentage
No, definitely not	3	3%
No	28	28%
Rarely (almost never)	59	59%
Yes	3	3%
Yes, quite frequently	7	7%
Yes, definitely	0	0%

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

<sup>25</sup> W.B. Swann, *To be adored or to be known? The interplay of self-enhancement and self-verification* [in:] *Motivation and cognition*, eds. R.M. Sorrentino, E.T. Higgins, New York 1990, p. 408–448.

<sup>26</sup> R.A. Wicklund, P.M. Gollwitzer, *Symbolic self-completion*, New York 1982.

Visibly enough, 59% of the respondents happened to make their students feel guilty, whereas 10% in total explicitly admitted doing that. 31% of academic teachers never evoked guilt in their students. Academic teachers, who happen to trigger guilt in their students may, deliberately or not, use it as a form of some psychological manipulation to punish them for something they should not have done. Eliciting guilt on a daily basis may be conducive to developing in students a performance goal-orientation rather than the one focused on learning, which in turn may make students anxious about getting an unfavourable judgement of their competence. In consonance with that, avoiding unfavourable judgements creates a perception that every task is a test of their abilities, ergo a potential opportunity to fail. Contrary to that, if students focus more on the learning goal-orientation, they acquire new skills, attempt to understand something they are not familiar with, apply adaptive learning strategies, and do not have difficulty seeking help while encountering obstacles.

The dichotomy of learning and performance goals stems from research conducted by Ames&Archer<sup>27</sup>, Dweck<sup>28</sup>, and Dweck&Leggett<sup>29</sup>, yet, visibly enough, many motivation theorists have recently supported the view that students' performance may be enhanced by creating a learning environment that enables students to achieve learning goals *in lieu of* performance-related ones. In contrast with that, as pondered by Tangney and Dearing<sup>30</sup> inasmuch as students need to be held responsible for what they did, it is the behaviour that should be accentuated, not the person. It is prudent to eschew ridiculing or announcing student's guilt publicly to control their behaviour. In preference to that, an academic teacher ought to allow for natural consequences.

### **Question 8 Have you ever told your students that presently people lack morals?**

Table 9. Distribution of answers to Question 8

Answer	Number of respondents	Percentage
No, definitely not	29	29%
No	38	38%
Rarely (almost never)	33	33%
Yes	0	0%
Yes, quite frequently	0	0%
Yes, definitely	0	0%

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

Explicitly, none of the surveyed academic teachers claimed to have told their students that presently people lack morals. 33% were tentative in their judgements, whereas over

<sup>27</sup> C. Ames, J. Archer, *Achievement goals in the classroom: Students' learning strategies and motivation processes*, "Journal of Educational Psychology", Vol. 80/3, Illinois 1988, p. 260–267.

<sup>28</sup> C. Dweck, *Motivational processes affecting learning* [in:] *American Psychologist*, Washington, 1986, p. 1040–1048.

<sup>29</sup> C. Dweck, E. Leggett, *A social-cognitive approach to motivation and personality*, "Psychological Review", Vol. 95, Washington 1988, p. 256–273.

<sup>30</sup> J.P. Tangney, R.L. Dearing, *Shame and guilt*, New York 2002.

60% never did that. Basically, if a person states that others lack something it is indicative that this person has it, or at least assumes so. The teacher's role is the one of a guide, and there are assorted reasons for role internalization to occur.

According to the reflected appraisal process<sup>31</sup>, people perceive themselves the way they believe other people perceive them, *ergo* social interaction is a vital factor in developing self-conceptions. Contrary to that, recent studies enable to draw different inferences. People are rather unlikely to see clearly how they are perceived by others, especially strangers. Instead, they believe that other people see them the way they see themselves<sup>32</sup>. As formulated by Thagard and Wood<sup>33</sup> 'instead of others' views influencing one's self-view, then, one's self-view determines how one thinks others view oneself. It is possible, however, that within close relationships, the reflected self plays a greater role in shaping the self-concept'. Here, the teacher stating that other people lack morals plays the role of the morally superior and the one who discriminates between what is right or wrong.

This is inextricably linked to the afore-postulated view that the teacher may assume that the students share the self-perception. Unfortunately, playing the 'morally superior', while judging other people's actions may lead to being perceived as sanctimonious.

**Question 9 Have you ever told your students that you would not finish the classes earlier, because it is against the rules?**

Table 10. Distribution of answers to Question 9

Answer	Number of respondents	Percentage
No, definitely not	0	0%
No	29	29%
Rarely (almost never)	48	48%
Yes	19	19%
Yes, quite frequently	4	4%
Yes, definitely	0	0%

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

As plotted in the table, the total of 71% of the academic teachers happened not to finish the classes earlier considering it as acting against the rules, whereas 29% of the respondents did not use it as a reason. Again, the motivation behind that may be found in self-construction, for it confirms an already established self-view such as acting only in accordance with the rules (See **Question 6** for comparison).

<sup>31</sup> G.H. Mead, *Mind self, and society*, Chicago: University of Chicago Press 1934.

<sup>32</sup> D.M. Tice, H.M. Wallace, *The reflected self: creating yourself as (you think) others see you* [in:] *Handbook of Self and Identity*, eds. M.R. Leary and J.P. Tangney, New York, NY: Guilford Press, 2003, p. 91–105.

<sup>33</sup> P. Thagard, J.V. Wood, *Eighty phenomena about the self: Representation, evaluation, regulation, and change*, "Frontiers in Psychology", Vol. 6, Seattle 2015.

**Question 10** Have you ever told your students that you find it difficult to understand modern youth?

Table 11. Distribution of answers to Question 10

Answer	Number of respondents	Percentage
No, definitely not	42	42%
No	41	41%
Rarely (almost never)	17	17%
Yes	0	0%
Yes, quite frequently	0	0%
Yes, definitely	0	0%

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

Conspicuously, none of the surveyed academic teachers claimed explicitly to have told their students that it is difficult to understand modern youth. 17% were tentative in their judgements, whereas a total of 83% never did that. Telling students that understanding their generation is difficult along with pretending to be superior and morally upright may result in creating unnecessary distance. A situation when an academic teacher is prone to conclude in this way, usually ensues from their dissatisfaction as regards students' performance or actions in general. That may be associated with the notion of role internalization. Notwithstanding, the inclination to define oneself against the backdrop of one's social roles, does not constitute merely the link between social roles and self-conceptions. Every social role encompasses a set of behavioural expectations and assumptions concerning one's personal characteristics.

In the course of playing social roles, people often come to internalize role-relevant personal characteristics. They come to see themselves as possessing the qualities suggested by the roles they play. Again, lack of teacher's understanding of students' generation indicates potential wrongness in their actions, whereas the teacher playing the 'teaching role' is the one who guides, and discriminates between what is right or wrong.

## 6. CONCLUSION

The paper investigated the application of self-presentation strategies in academic surroundings, and juxtaposes them with their potential impact on students. The strategy of self-promotion is helpful while people endeavour to draw attention to their attainments in order to be regarded as competent or capable. Most importantly, though seemingly akin to ingratiation, the strategy of self-promotion does not focus on building a likable image. One of potential risks pertinent to inapt use of this strategy is appearing as conceited and fraudulent. The second strategy, exemplification, creates the impression that someone is morally superior, virtuous, or righteous, yet sometimes at the expense of being viewed as hypocritical, sanctimonious, or selfish.

Based on the online questionnaire completed by 100 academic teachers, it may be inferred that the strategies of self-promotion and exemplification were the least frequently chosen ones. The rationale behind this result may be found in teacher's reluctance to appear

as showing off or being vainglorious. As already stated, people, including teachers, aim at relatedness, i.e. they want to belong to groups of people that they care for, here – the students. Essentially, people are aware that it is more probable to successfully integrate with those who perceive them positively. To this end, they frequently endeavour to establish a favourable impression.

Most conspicuously, individual's public behaviour determines to some extent private self-conceptions. People are audiences for their own behaviour. Inasmuch as our behaviour may convince other people that we are competent or able, we may, too, convince ourselves.

To conclude it is prudent to adduce Park's wording: 'everyone is always and everywhere, more or less consciously, playing a role. It is in these roles that we know each other; it is in these roles that we know ourselves'<sup>34</sup>. The main limit of the research connected to the Likert scale proved wrong, on the grounds that teachers were not inclined to choose answers right in the middle of the questionnaire, nor afraid to state their opinions clearly. The paper may well constitute a basis for further research on self-presentation strategies applied in academic surroundings. It is also worth scrutinizing, what personal traits – if any – may determine the inclination to behave in certain ways.

## REFERENCES

1. Akerlof G.A., Kranton R.E., *Economics and Identity*, "The Quarterly Journal of Economics", Vol. 115/3, Oxford, 2000.
2. Akerlof G.A., Kranton R.E., *Identity Economics: How Our Identities Shape Our Work, Wages and Well-Being*, Princeton University Press 2010.
3. Ames C., *Classrooms: Goals, structures, and student motivation*, "Journal of Educational Psychology", Vol. 84, University of Illinois Press, Illinois 1992.
4. Ames C., Archer J., *Achievement goals in the classroom: Students' learning strategies and motivation processes*, "Journal of Educational Psychology", Vol. 80/3, Illinois 1988.
5. Arkin R.M., Baumgardner A.H., *Self-handicapping [in:] Basic issues in attribution theory and research*, eds. J.H. Harvey and G. Weary, Academic Press, New York 1985.
6. Baumeister R.F., *A self-presentational view of social phenomena*, "Psychological Bulletin", Vol. 91, Washington 1982.
7. Baumeister R.F., Tice D.M., Hutton D.G., *Self-presentational motivations and personality differences in self-esteem*, "Journal of Personality", Vol. 57, John Wiley & Sons, Inc., 1989.
8. Baumeister R.F., Leary M.R., *The need to belong: desire for interpersonal attachments as a fundamental human motivation*, "Psychological Bulletin", 117, Washington 1995.
9. Baumeister R.F., *The self [in:] The Handbook of Social Psychology*, eds. D.T. Gilbert, S.T. Fiske, G. Lindzey, New York 1998.
10. Bénabou R., Tirole J., *Intrinsic and Extrinsic Motivation*, "The Review of Economic Studies", Vol. 70/3, London 2003.
11. Bénabou R., Tirole J., *Incentives and Prosocial Behavior*, "American Economic Review", Vol. 96/5, American Economic Association 2006.

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<sup>34</sup> R.E. Park, *Human nature and collective behavior*, "American Journal of Sociology", Vol. 32, Chicago 1927, p. 733–741.



12. Bursztyn L., Jensen R., *Social Image and Economic Behavior in the Field: Identifying, Understanding, and Shaping Social Pressure*, "Annual Review of Economics", Vol. 9/1, Palo Alto, USA 2017.
13. Carver C.S., Scheier M.F., *Aspects of self, and the control of behavior* [in:] *The self and social life*, ed. B.R. Schlenker, New York 1985.
14. Deci E.L., Ryan R.M., *The "what" and "why" of goal pursuits: human needs and the self-determination of behaviour*, "Psychological Inquiry", Vol. 11, London, 2000.
15. Dweck C., *Motivational processes affecting learning*, "American Psychologist", Washington, 1986.
16. Dweck C., Leggett E., *A social-cognitive approach to motivation and personality*, "Psychological Review", Vol. 95, Washington 1988.
17. Goffman E., *The presentation of self in everyday life*, Doubleday, New York 1959.
18. Jones E.E., Pittman T.S., *Toward a general theory of strategic self-presentation* [in:] *Psychological perspectives on the self*, ed. J. Suls, New York 1982.
19. Jones E.E., *Interpersonal perception*, W.H. Freeman and Co, New York 1990.
20. Leary M.R., Kowalski R.M., *Impression management: A literature review and two-component model*, "Psychological Bulletin", Washington 1990.
21. Maehr M., Midgley C., *Enhancing student motivation: A school-wide approach* [in:] *Educational Psychologist*, London 1991.
22. McCall G.J., *Identities and interactions*, The Free Press, New York 1966.
23. Mead G.H., *Mind self, and society*, University of Chicago Press, Chicago 1934.
24. Montalvo G.P., *Pleasing the teacher: A student perspective*, Unpublished manuscript, 1995.
25. Montalvo G.P., Roedel T., *Pleasing the teacher: A qualitative look*, Paper presented at the annual meeting of the American Educational Research Association, San Francisco 1995.
26. Newman R., *What do I need to do to succeed when I don't understand what I'm doing: Developmental influences on student adaptive help seeking* [in:] *Development of Achievement Motivation*, eds. A. Wigfield and S. Eccles, San Diego, CA: Academic Press 2002.
27. Park R.E., *Human nature and collective behavior*, "American Journal of Sociology", Vol. 32, Chicago 1927.
28. Rosenberg M., *Conceiving the self*, Basic Books, New York 1979.
29. Sarbin T.R., Allen V.L., *Role theory* [in:] *The handbook of social psychology*, eds. G. Lindzey, E. Aronson, Reading, MA: Addison-Wesley 1968.
30. Schlenker B.R., *Self-presentation: Managing the impression of consistency when reality interferes with self-enhancement*, "Journal of Personality and Social Psychology", Washington 1975.
31. Scheier M.F., Carver C.S., *Two sides of the self: One for you and one for me* [in:] *Psychological perspectives on the self*, eds. J. Suls, A.G., Greenwald. Hillsdale, NJ: Lawrence Erlbaum Associates 1982.
32. Schlenker B.R., *Impression management: The self-concept, social identity, and interpersonal relationships*, Monterey, CA: Brooks/Cole 1980.
33. Schlenker B.R., Leary M.R., *Audiences' reactions to self-enhancing, self-denigrating, and accurate self-presentations*, "Journal of Experimental Social Psychology", Washington 1982.
34. Schlenker B.R., *Identity and self-identification* [in:] *The self and social life*, ed. B.R. Schlenker, McGraw-Hill, New York 1985.

35. Schlenker B.R., Weigold M.F., *Goals and the self-identification process: Constructing desired identities* [in:] *Goal concepts in personality and social psychology*, ed. L.A. Pervin, Hillsdale, NJ: Erlbaum 1989.
36. Schlenker B.R., Trudeau J.V., *The impact of self-presentations on private self-beliefs: Effects of prior self-beliefs and misattribution*, "Journal of Personality and Social Psychology", Washington 1990.
37. Schlenker B.R., *Self-presentation* [in:] *Handbook of Self and Identity*, eds. M.R. Leary and J.P. Tangney, New York 2003.
38. Schneider D.J., *Tactical self-presentations: Toward a broader conception* [in:] *Impression management theory and social psychological research*, ed. J.T. Tedeschi, New York 1981.
39. Stryker S., Statham A., *Symbolic interaction and role theory* [in:] *The handbook of social psychology*, eds. G. Lindzey, E. Aronson, Random House, New York 1985.
40. Swann W.B., *To be adored or to be known? The interplay of self-enhancement and self-verification* [in:] *Motivation and cognition*, eds. R.M. Sorrentino, E.T. Higgins, New York 1990.
41. Tangney J.P., Dearing R.L., *Shame and guilt*, New York 2002.
42. Tedeschi J. T., *Private and public experiences and the self* [in:] *Public self and private life*, ed. R.F. Baumeister, Springer-Verlag, New York 1986.
43. Thagard P., Wood J.V., *Eighty phenomena about the self: Representation, evaluation, regulation, and change*, "Frontiers in Psychology", Vol. 6, Seattle 2015.
44. Tice D.M., Butler J.L., Muraven M.B., Stillwell A.M., *When modesty prevails: differential favorability of self-presentation to friends and strangers*, "Journal of Personality and Social Psychology", Washington 1995.
45. Tice D.M., Wallace H.M., *The reflected self: creating yourself as (you think) others see you* [in:] *Handbook of Self and Identity*, eds. M.R. Leary and J.P. Tangney, New York 2003.
46. Wicklund R.A., Gollwitzer P.M., *Symbolic self-completion*, New York 1982.

### **STRATEGIE AUTOPREZENTACJI STOSOWANE PRZEZ RZESZOWSKICH WYKŁADOWCÓW I ICH POTENCJALNY WPŁYW NA STUDENTÓW – AUTOPROMOCJA I EGZEMPLIFIKACJA**

Artykuł podejmuje problematykę zastosowania strategii autoprezentacji w warunkach akademickich i zestawia je z ich potencjalnym wpływem na studentów. Dane przedstawione w artykule zostały wyekscerpowane z badań przeprowadzonych w lutym i marcu 2018 roku, odnośnie do zastosowania przez rzeszowskich wykładowców strategii ingracjacji, intymidacji, autopromocji, suplikacji i egzemplifikacji. Autoprezentacja to, w uproszczonych słowach, dobór zachowań mających na celu zarządzanie własnym wizerunkiem i tym jak postrzegają nas inni, podczas gdy strategia autoprezentacji to dobór środków do budowania konkretnego obrazu. Artykuł obejmuje grupę 100 rzeszowskich wykładowców akademickich, mężczyzn i kobiet, pomiędzy 26. i 62. rokiem życia. Badania przeprowadzone za pośrednictwem ankiety online wykazały, że autopromocja i egzemplifikacja były najrzadziej wybieranymi strategiami. Każda ze strategii objęła pięć powiązanych tematycznie pytań. Wynik ten może wynikać z faktu, że wykładowcy nie chcą być postrzegani jako próżni, lub zapatrzeni w siebie. Podczas konstruowania pytań autorka starała się dopasować je tematycznie do danej strategii

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na tyle na ile to możliwe. Cechy charakterystyczne każdej z dwóch strategii zostały wyodrębnione podczas budowania kognitywnej rzeczywistości wokół pytania.

**Słowa kluczowe:** autoprezentacja, strategia, autopromocja, egzemplifikacja, nauczyciel akademicki.

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## LOGISTICS – SCIENCE OF PRESENT – DAY AND FUTURE

Logistics is management of flows and process in chains through time, sequential, space and capacity parameters like capacity usability of equipment, order and amount of produced product, layout of sale and distribution centres, initiate time, processing time and finalizing time of individual process. Criteria of management are capacitive, time, but in global explanation they are economic too. Processes creating chains are purchasing, procurement, storing, transport, production processes, distribution of products, maintenance, etc. managing functions are allocated, layout and set-up, prognosis, aggregation planning, scheduling, dispatching control, monitoring and others. The article describes why logistics has been one of the dynamic factors of the economy and increasing the competitiveness of enterprises in recent decades. It analyzes these factors and shows why orientation towards the systematic building of logistics systems increases their competitiveness. The article also describes the historical development of logistics from the logistics of individual activities to the creation of logistic hierarchical systems and the theoretical basis for the development of logistics as a system science of management. Significantly changes inter-company relationships to different types of SCM, DCM and third logistic party-3PL as a new stage in logistics development. The article also points out that logistics is today an important factor in the development of the economy, an integral part of business management, a solid part of the science of management.

**Keywords:** logistics history, material flows, dynamic factors, SCM, 3-PL.

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## 1. INTRODUCTION

Logistics became at the end of the 20th century one of the dynamics factor of the world economy. In particular, contributed to it, factors such as the globalization of the world market, the development of new methods of informatics, cybernetics and mathematics, but too the development of global information and transport networks and last but not least the fact that the cost of the product is at least 40% of the cost of the product.

The development of logistics has gone from the management and realization of individual logistics activities such as distribution of goods, supply, storage<sup>4</sup> to the management of flows in chains of activity, such as in the production company, the basic material chain: supply – storing – production processes – selling – distribution, to logistics systems represented, for example, micrologistic and macrologistic models<sup>5</sup>.

Inter-company supply chains go from the classic form of the chain: order-product-invoice-payment, to different types of SCM, such as Lean SCM, Agile SCM, DCM, Third logistic party 3PL, 4PL, 5PL<sup>6</sup>.

The theoretical basis of logistics is the system approach, the application of the principle of "feed forward" in managing, in particular, time and spatial variables of material, information and financial flows with a view to their overall optimization. Logistics mainly applies tools and methods of planning and scheduling of production, modeling and simulation, heuristics, hierarchical management systems and multi-criteria optimization.

## 2. THE LOGISTIC – DYNAMIC FACTORS OF WORLDS' ECONOMY

Is the world "logistics" only a new modern world in nowadays science, or is logistics a science, philosophy and industry, which influence the worlds' economy?

Logistics has become in last decades of 20<sup>th</sup> century and 15-20 years of 21<sup>st</sup> century one of the most essential and dynamic factors of worlds' economy. Reasons for that were mostly<sup>7</sup>:

1. Globalization of world and globalization of world trade.
2. Unbalance between the resources, production and consumption and its allocation in world-wide environment.

<sup>4</sup> D. Malindžák et al, *Theory of logistics – definitions, paradigms, principles and structures*, Košice 2007; Bigoš a kol., I. Kiss, I.J. Ritók, *Materiálové toky a logistika*, Prešov 2002.

<sup>5</sup> D. Malindžák et al., *Theory of logistics...*; D. Malindžák, J. Takala, *Projecting of logistic systems – theory and practice*, Košice 2005.

<sup>6</sup> D. Malindžák, J. Mervart, R. Lenort, *The logistic principles for fast flexible strategy design of the company in crisis time*, „Managing Global Transitions, International research journal“ 2011, Vol. 9, No. 2, p. 129–149; M. Christopher, *Logistics and supply chain management, Strategies for reducing costs and improving services*, Finanacial Times Publishing, London 1998; Li X., C. Chung, T.J., Gollidsby, C.W. Holsapple, *A Unified Model of Supply Chain Agility, the Work-Design Perspective*, “The International Journal of Logistics Management” 2008, Vol. 19, No. 3, p. 408–435; M. Christopher, R., Lowson, H. Peck, *Creating Agile Supply Chains in the Fashion Industry*, “International Journal of Retail & Distribution Management” 2004, Vol. 32, No. 8, p. 367–376.

<sup>7</sup> D. Malindžák et al., *Theory of logistics...*; J.C. Johnson, D.F. Wood, *Contemporary Logistics*, sixth edition, Prentice Hall, Upper Saddle River, N.J. 1996; D. Malindžák, J. Takala, *Projecting of logistic systems – theory and practice*, Košice 2005.

3. Development of new management technologies (in mathematics, cybernetics and informatics).
4. Factor of costs and prices reduction. Global competitiveness – period of logistics.

Ad 1)

With the world's globalization and in Europe with the end of socialism, a new market was opened. An environment for movement of investments, materials, products, energy, information and human resources was liberalized. The flow volumes of above-mentioned substances are growing. Build-up of new transportation systems in roads, railways (for example. Europe TINA a TEN) and aerial navigation have positively influence this growth. Creation of world-wide information highways and networks with high speed and volume of transport are revolutionary change also in area of flow management of products, information and finance, which mean of logistic systems. Electronic commerce (order, appraisal of orders, automated payments, electronic signature etc.) increase the efficiency and productivity and support management of business activities – commercial logistics.

Companies realizing the competitive opportunities are creating chains and networks of companies, starting from the raw material mining, processing into polymers and products, delivery to customers, product services, recycling of its wrappings, waste and products itself. Due to these they are creating logistic networks and macro-logistics is developed<sup>8</sup>.

Ad 2)

Flow as moving substance changing its parameters in time and place, is created as a difference of potentials. We can explain it analogically on an example of electric field. Electric current results from the interconnection of higher potential (+) with lower potential. Logistics creates conditions for flow establishment, manages them and ensures them<sup>9</sup>.



Figure 1. Flow as the results of potential distinction

Source: own.

There is a main difference between potentials in the world:

Raw resources → production → consumption.

These flows are of vital concern for world operation and liberalization of worlds' economy represented by market economy supports native balancing of these potentials.

<sup>8</sup> D. Malindžák, J. Takala, *Projecting of logistic systems – theory and practice*, Košice 2005; M. Straka, *Logistics of distribution, How effectively to put product into the market*, Bratislava 2013.

<sup>9</sup> D. Malindžák et al., *Theory of logistics...*

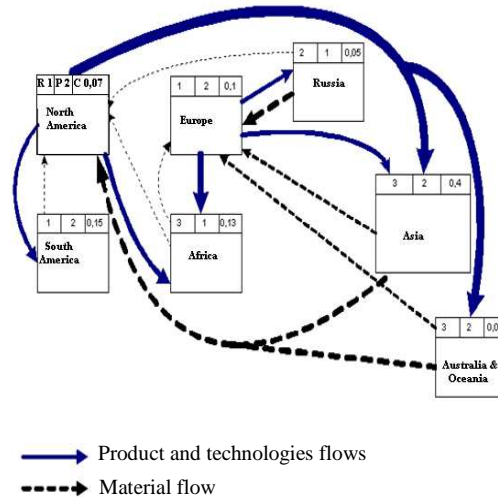


Figure 2. Main material flows of the world

Source: own.

From worlds' statistics it is obvious that if from the global point of view we compare these three potentials resources/R/ – production/P/ – consumption/C/, then these material flows are established by following factors (Figure 2)<sup>10</sup>:

- Europe and North America draw on roughly half of the raw materials they need for their industry production. That is the reason they need to import the materials.
- Russia and SNŠ countries are dealing with the opposite situation. They draw on almost twice that much of raw materials then they are able to use in their industry production. Asia, Australia and Oceania upraise also almost one third more then they use.
- On the other hand, Europe and North America and their industry produce much more products and technologies then their market can consume. That is the reason they need to export their products mostly to Asia, Africa, SNŠ, South America etc. On Fig. 2. we can see the main material flows. Above each of them, there is a triplet R/P/C

R/P – proportion of upraise and consumption of raw materials

C – share of world's consumption rising from proportion of population to worlds' population. Together with material flow, there are parallel and inverse flows of information and finance are created.

Unbalance among resources – production – consumption is mostly caused by historical development of economy stage, territorial geology, development of population and living standard. Balancing of these potentials and existence of flows are long-term situation needed to be solved for several decades to come. That is the main reason why logistics plays such an important role in costs and competitiveness.

<sup>10</sup> D. Malindžák, J. Takala, *Projecting of logistic systems...*



Ad 3)

Also development of managerial methods contributed to the development of logistics – management of distributed companies' productivity, methods of outsourcing, risk management, concentration of capital into big corporations, etc. development of distributed management methods, modelling and simulation, multi-criteria optimizing and its usability within world information networks gives us tools for dealing with the flows within the world-wide environment.

Ad 4)

World-wide market and competitiveness, tendency of producers to muddle through the markets are forcing the producers to cut and reduce their costs. Automation and informatization have increased the productivity of production systems. Times when automation and informatization were leading the dynamic of worlds' economy are over. They are considered to be prevalence in nowadays production systems. It is difficult to picture a successful production without them. The reduction of costs is that's why in the area of connected operations, supporting processes and in its management – in logistics. In compare to automation and informatization of technological processes, allocation of logistics is less expensive and more effective. Mostly it doesn't require high investment but only a good idea, organization and cooperation.

If we take a look at the 20<sup>th</sup> century, economical dynamic was always influenced by different factors<sup>11</sup>.

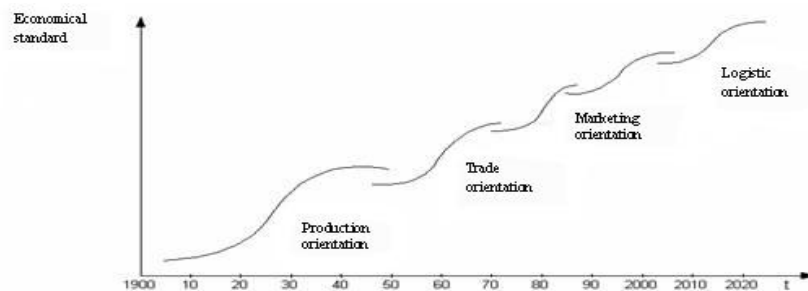


Figure 3. Factors influencing the economy of 20<sup>th</sup> century

Source: own.

- 50s – 60s of 20<sup>th</sup> century is also called production oriented economy, which focused on maximizing of production. Main issue was to produce as much as possible. Successful companies were those which could produce the most possible amount.
- 50s – 70s were mostly oriented on sale – maximizing of sale. Production has exceeded the demand; old markets were totally covered by products. Successful companies were those which could sell as much as possible.

<sup>11</sup> *Ibidem*.

- 70s – 90s are known for their marketing orientation. The aim was to maximize the area of trade. Customers started to be more essential, battles for new markets was common. Research and companies are more interested in marketing strategies. More and more companies base on long-term contracts, strategic customers and trades.
- Last years of 20<sup>th</sup> century – logistic oriented economy focused on maximal satisfaction of customers. The whole chain of company's activities is oriented on global costs reduction and on final customer.

Global optimizing in the whole chain is replacing the local optimizing of activities; internal management is concentrated on coordination and systematic approach. Quality is becoming more essential together with environmental issues.

The logistic became in last 30th years one of the dominant factor of the world economy and competitions of companies. The development of its theory supported the applications of the practise. This paper is small contribution for logistic theory.

### 3. THE LOGISTIC DEVELOPMENT

Logistics has gone through the following phases since it began to apply in the economy<sup>12</sup>:

- 1) Sixty years ago, when logistics development in the US was associated with optimizing the distribution of production, then the relationship between buyers and the market changed, and a marketing philosophy was created. Supply services have been instrumental in market strategy.
- 2) The second phase is associated with the entry of Japan into the world economy stage, particularly in the field of automation. The European and American response has been reflected in the increased quality of technology in the preparation of orders. Requirements for integration of planning and management of production and distribution have arisen.
- 3) The third phase, present, is influenced by the JIT philosophy with extensive use of information technology and production optimization.
- 4) The fourth phase, which is expected to further develop logistics, is to build global logistics systems, including managing logistics chains, maximizing supply potential, production preparation, production, distribution with the goal of creating electronically integrated logistics systems. Moving understanding of logistics from corporate to strategic inter-company logistics/SCM/.

It can be said that the logistics of the 20th century is a discipline of science, management philosophy, a significant area of economics and business, an integral part of almost every process.

Without respecting this we lose the system approach. To apply, the system approach means to create the chain at least from three elements-triad (Figure 2): input element (activity), dominated- managed activity and output activity.

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<sup>12</sup> M. Christopher, R. Lawson, H. Peck, *Creating Agile Supply...*, p. 367–376.

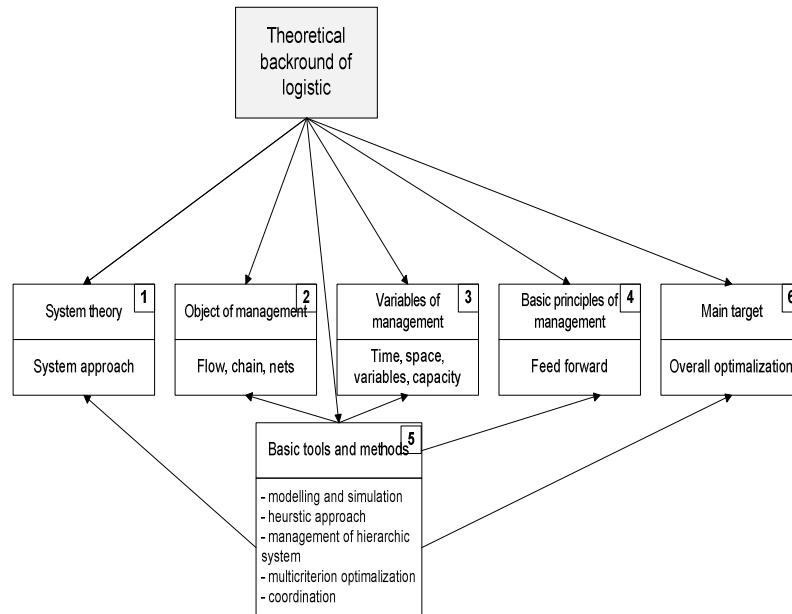


Figure 4. Six main stones of logistic theory

Source: own.

#### 4. THE LOGISTIC AND SCM RELATION

In recent years, there is often discussion about the relationship between logistics and SCM. There are four basic views on this relationship:

1. **Tradicionalist-logistics is understood to be a wider scope than SCM. SCM is understood to be part of the enterprise's macrologistics as one of the possibilities of inter-company relations.**
2. **Unionist-where SCM is a wider scope than logistics, because intra-company logistics processes can be considered as strings behind the SCM.**
3. **Changing-transformational, it is based on the fact that logistics is a historical concept and SCM is a new modern view of the same space.**
4. **Pricing-overlapping -SCM is understood as part of enterprise logistics and vice versa logistics is just one of the supply system channels-SCM**

##### 4.1. Supply chain

If the company does not have orders for several weeks in advance, one of the options for this situation long-term solution is to chain/link enterprises and to create a supply chain<sup>13</sup>.

<sup>13</sup> I. Gros, S. Grosová, *Logistika a marketing v dodavatelských řetězcích*, „Logistika“ 2004, nr 7–8, p. 48–49; D. Malindžák, J. Mervart, R. Lenort, *The logistic principles...*, p. 129–149.

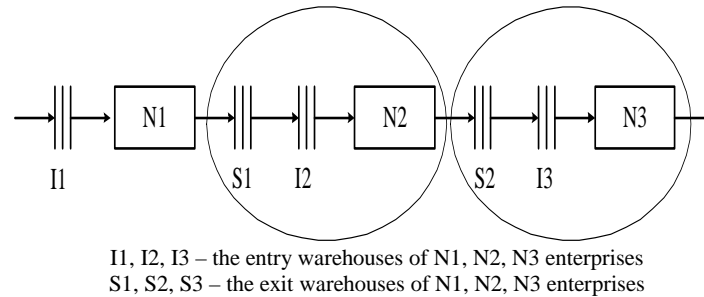


Figure 5. Supply chain application

Source: own.

For example: enterprise N1 receives or gains the manufacturing plan forecast of enterprise N2 and N2 enterprise will specify, how big the stock produced by N1 should be e.g. in  $T_1, T_2, \dots, T_N$  period in the exit warehouse of N1 company. The same will apply for N3 enterprise, which will specify the volume of inventory for the same  $T_1, T_2, \dots, T_N$  period as in N2 enterprise etc. (see the figure 3). This will enable to manage these enterprises in the long run and to increase the uniformity of production, to create optimum production batches, and to generate internal orders by accumulation of a larger number of orders for a longer period of time. This all, however, is just a forecast. As a part of this forecast business is carried out on the basis of particular orders. The supply chain is mostly initiated by the companies with the strongest position in the chain or based on the agreement of all companies becoming a part of this chain.

#### 4.1.1. Lean supply chain

Lean thinking was conceptualized to apply to all activities in the firm and across the companies in the supply chain. Lean thinking in supply chain is the use of lean principles to align activities across corporate functions within the firm and to manage business relationships with customers and suppliers<sup>14</sup>.

What makes a supply chain lean? To begin with, a lean supply chain seeks to reduce wastes found anywhere in the supply network, standardize processes across traditional, vertical organizations, and optimize core resources. Lean supply chains seek to create customer-winning value at the lowest cost through the real-time synchronization of product/service needs with the optimum supplier. Achieving such objectives requires supply chain to be responsive (capable of meeting changes in customer needs for requirements such as alternative delivery quantities and transport modes) as well as flexible (adapting assets, pursuing outsourcing, and deploying dynamic pricing and promotions). Finally, lean supply chains are dedicated to the continuous improvement of people and processes throughout the extended supply chain. How do companies develop the lean supply chain capabilities that will lead to the kind of superior supply chain performance demonstrated

<sup>14</sup> I. Gros, S. Grosová, *Logistika a marketing...*, s. 48–49; D. Malindžák, J. Mervart, R. Lenort, *The logistic principles...*, p. 129–149.

by the top adopters and the industry leaders? Abbott et al. identified six attributes that companies should strive to develop:

1. Demand management capability – an underlying tenet of the lean philosophy is that product should be “pulled” by actual customer demand rather than “pushed” into the market;
2. Waste and cost reduction – in the broadest sense, waste can be time, inventory, process redundancy, or even digital waste;
3. Process and product standardization – it’s important to develop standardization across both processes and products;
4. Industry standards adoption – standardization also needs to extend beyond a company’s particular supply chain to the industry overall;
5. Cultural change competency – there is one recurring obstacle to successfully applying lean supply chain concepts, i.e. resistance from the people who will be asked to embrace and implement the change;
6. Cross-enterprise collaboration – through collaborative practices and processes, supply chain partners must work to maximize the value stream to the customer.

#### 4.1.2. Agile supply chain

Agility is another concept often cited together with lean. Lean concepts work well where demand is relatively stable and hence is volatile and where variety is low. Conversely, in those contexts where demand is volatile and the customer requirement for variety is high, a much higher level of agility is required<sup>15</sup>.

Agility, as a business concept, was coined in the manufacturing context – particularly in relation to flexible manufacturing systems. This concept was refined by Naylor et al. with a major focus on agility in supply chains<sup>16</sup>. By synthesizing representative agility definitions from several disciplines, Li et al. advance a unifying general-purpose definition of agility as follows<sup>17</sup>: “Agility is the result of integrating an alertness to changes (opportunities/challenges) – both internal and environmental – with a capability to use resources in responding (proactively/reactively) to such changes, all in a timely, and flexible manner.”

Harrison et al. and Christopher et al. identify characteristics that a supply chain must have in order to be agile<sup>18</sup>:

- Market sensitive – closely connected to end-user trends,
- Virtual – relies on shared information across all supply chain partners,
- Network-based – gains flexibility by using the strengths of specialist players,
- Process aligned (process integration) – it has a high degree of process interconnectivity between the network members.

<sup>15</sup> D. Malindžák, J. Mervart, R. Lenort, *The logistic principles...*, p. 129–149; M. Christopher, *Logistics and supply chain management, Strategies for reducing costs and improving services*, London 1998.

<sup>16</sup> J.B. Naylor, M.M. Naim., Berry D., *Leagility: Interfacing the Lean and Agile Manufacturing Paradigm in the Total Supply Chain*, “International Journal of Production Economics” 1999, Vol. 62, p. 107–118.

<sup>17</sup> Li X., C. Chung, T.J. Golldsbj, C.W. Holsapple, *A Unified Model...*, p. 408–435.

<sup>18</sup> M. Christopher, R. Lawson, H. Peck, *Creating Agile Supply...*, p. 367–376; A. Harrison, M. Christopher, R. Van Hoek, *Creating the Agile Supply Chain Working paper, School of Management, Cranfield*, 1999.

#### 4.1.3. Leagile supply chain

Naylor et al. coined the term “leagile” to refer to hybrids of the lean and agile approaches<sup>19</sup>. Here are three proven ways in which the concepts have been brought together to provide available and affordable products for the end customer:

- The Pareto curve approach – the Pareto (80/20) rule, recognizing that 80 % of a company’s revenue is generated from 20 % of the products. It is suggested that the fast-moving products that make up the dominant 20 % of the product line can be produced in a lean, make-to-stock manner given that demand is relatively stable for these items and that efficient replenishment is the appropriate objective. Meanwhile, the remaining 80 % should be produced in an agile, less anticipatory manner, perhaps even employing make-to-order production to generate supply for only those items ordered when they are ordered<sup>20</sup>.
- The de-coupling point approach – here is idea to hold strategic inventory in some generic or modular form and only complete the final assembly or configuration when the precise customer requirement is known. Companies may utilise lean methods up to the de-coupling point and agile methods beyond it.
- Separation of “base” and “surge” demands – base demand can be forecast on the basis of past history whereby surge demand typically cannot. Base demand can be met through classic lean procedures to achieve economies of scale whereas surge demand is provided for through more flexible , and probably higher cost, processes.

#### 4.1.4. Demand chain

This philosophy has recently led mainly to bigger pressure from chain dominant enterprises that specify, for their sub-suppliers, the volume of products and the period ( $T_1, T_2, \dots, T_N$ ), in which the given volume should be either in a warehouse close to their premises or directly in entry i.e. disposition warehouses. The above-mentioned goods will be owned by the supplier up to the moment of their release from the disposition warehouse. Once released the following will take place: deal – order – invoice – payment to the sub-supplier. We would like to stress out once more that the goods in disposition warehouses are owned by sub-suppliers, which forces each enterprise in the chain to make its sub-suppliers create I0, I1, I2 dispatch warehouses in its premises (see the figure 4). Each company in the chain has to require this from its sub-suppliers. Otherwise it will pay for the given warehouses (product cost, storage cost included) at the entry and at the exit of the enterprise itself, thus having a disadvantage compared to the rest of the demand chain<sup>21</sup> DCH members.

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<sup>19</sup> J.B. Naylor, M.M. Naim., D. Berry, *Leagility: Interfacing the Lean...*, p. 107–118.

<sup>20</sup> M. Christopher, R. Lowson, H. Peck, *Creating Agile Supply...*, p. 367–376.

<sup>21</sup> I. Gros, S. Grosová, *Logistika a marketing...*; D. Malindžák, J. Mervart, R. Lenort, *The logistic principles...*, p. 129–149.

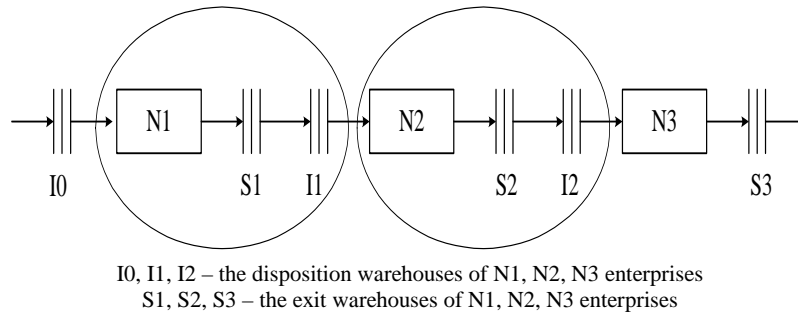


Figure 6. The principle of I0, I1 demand chain application

Source: own.

Once the dominant or final company of the chain defines its requirements (demand) related to the volume of products available in sub-supplier's disposition warehouses for several scheduling periods in advance - as a forecast of its most probable needs, this logistic strategy will enable all the members of this demand chain to achieve benefits in the following aspects:

- optimum production batches, which can be formed when accumulating forecasted sub-suppliers' requirements for a longer period of time;
- they can produce temporarily to stock, when the given product is to be delivered in some of the coming scheduling periods;
- if the manufacturing capacity is not used in a sufficient manner, production can be carried out in advance;
- thus it is more stable and uniform and results in better manufacturing productivity;

It is important to maintain discipline in a demand chain, which can be embodied in bilateral or multilateral contracts for the entire chain.

The question is how much of its capacity the enterprise will devote to SCH and DSCH.

The relations and obligations within SCH and DCH are beneficial as long as the enterprises in the chain function and fulfill agreements. This strategy is suitable when cooperating mainly with strategic partners.

If, however, any of these strategic partners fall out of the chain for some reason, all its sub-suppliers i.e. previous members of the chain will face the consequences of their membership in the given chain, i.e. all of them will have insufficient coverage of their production capacities.

Therefore the enterprise should consider the extent, into which it will devote its capacities to SCH and DCH in order to leave certain capacity for its new potential customers. The optimum volume of production capacity dedicated to SCH and DCH seems to be max. 60–70%.

#### 4.2. Third party logistic strategy

Not all entities involved in the production, transport and other activities must be part of the SCM. The cooperating entities with the SCM are called "Third Party". Under the co-operation framework, the five levels are defined:

**1PL**-all logistics activities-transport, storage, distribution, information services, chain management are provided by single members of the chain themselves

**2PL**-non-SCM entities that provide transport or storage services to individual members of SCM or the entire chain

**3PL**-non-SCM entities that provide complex logistic services for individual members of the SCM or for the whole chain, such as contract, legal, shipping, warehousing, distribution

**4PL**-non-SCM entities that provide for SCM IKT services for all members of the SCM, planning, managing all SCM chain functions

**5PL**- non-SCM entities that design, create and run a new SCM

## 5. SUMMARY

The logistic became in last 30th years one of the dominant factor of the world economy and competitions of companies. The development of its theory supported the applications to the practise.

Globalization of world trade, unbalance between the resources, production and consumption and its allocation in world-wide environment, development of new management technologies and cybernetics and informatics methods and factor of logistics costs and prices reduction create conditions for rapid development of logistics

The article also points out that logistics is today an important factor in the development of the economy, an integral part of business management, a solid part of the science of management.

This paper is small contribution for logistic theory and its history.

## REFERENCES

1. Bigoš a kol., I. Kiss, Ritók, J., *Materiálové toky a logistika*. Prešov, Vydavateľstvo M. Vaška, 2002.
2. Christopher M., Lawson R., Peck H., *Creating Agile Supply Chains in the Fashion Industry*, "International Journal of Retail & Distribution Management" 2004, Vol. 32, No. 8.
3. Christopher M., *Logistics and supply chain management: Strategies for reducing costs and improving services*, Finanacial Times Publishing, London 1998.
4. Gros I., Grosová S., *Logistika a marketing v dodavateľských reťazciach*, „Logistika“ 2004, No. 7–8, Economia Praha.
5. Harrison A., Christopher M., Van Hoek R., *Creating the Agile Supply Chain Working paper*, School of Management, Cranfield University, Cranfield 1999.
6. Johnson J.C., Wood D.F., *Contemporary Logistics*, sixth edition, Prentice Hall, Upper Saddle River, N.J. 1996.
7. Li X., Chung C., Golldsbey T.J., Holsapple C.W., *A Unified Model of Supply Chain Agility: the Work-Design Perspective*, "The International Journal of Logistics Management" 2008, Vol. 19, No. 3.
8. Malindžák D. et al., *Theory of logistics – definitions, paradigms, principles and structures*, Karnat, Košice 2007.



9. Malindžák D., Mervart J., Lenort R., *The logistic principles for fast flexible strategy design of the company in crisis time*, „Managing Global Transitions: International research journal“ 2011, Vol. 9, No. 2.
10. Malindžák D., Takala J., *Projecting of logistic systems – theory and practice*, Expres Publicit s.r.o., Košice 2005.
11. Naylor J.B., Naim M.M., Berry D., *Leagility: Interfacing the Lean and Agile Manufacturing Paradigm in the Total Supply Chain*, “International Journal of Production Economics” 1999, Vol. 62.
12. Straka M., *Logistics of distribution, How effectively to put product into the market*, EPOS, Bratislava 2013
13. Viestová K., Štofilová J., Oreský M., Škapa R., *Lexicon of logistics*, first edition, Ekonóm Bratislava 2005

### LOGISTYKA – WSPÓŁCZESNOŚĆ I PRZYSZŁOŚĆ

Logistyka to zarządzanie przepływami i procesami w łańcuchach logistycznych z uwzględnieniem czasu, sekwencji, przestrzeni i przepustowości, z wykorzystaniem takich parametrów jak zdolność produkcyjna urządzeń, zamówienia i ilość wytworzonych produktów, rozmieszczenie centrów sprzedaży i dystrybucji, czas rozpoczęcia, czas operacji i czas zakończenia poszczególnych procesów. Kryteriami zarządzania jest przepustowość, czas, ale w globalnych warunkach są także uwzględniane kryteria ekonomiczne. Procesy tworzenia łańcuchów obejmują zakupy, zaopatrzenie, magazynowanie, transport, procesy produkcyjne, dystrybucję produktów, utrzymanie zdolności produkcyjnej itp. realizowane przez takie funkcje, jak rozmieszczenie urządzeń, konfiguracja, prognozy, planowanie i zagregowane planowanie, kontrola wysyłek, monitorowanie i inne. Artykuł przedstawia odpowiedź na pytanie, dlaczego logistyka stała się jednym z dynamicznych czynników rozwoju gospodarki i zwiększenia konkurencyjności przedsiębiorstw w ostatnich dziesięcioleciach. Analizuje te czynniki i pokazuje, dlaczego orientacja na systematyczne budowanie systemów logistycznych zwiększa ich konkurencyjność. Artykuł opisuje również historyczny rozwój logistyki od logistyki poszczególnych działań do tworzenia logistycznych systemów hierarchicznych i teoretycznych podstaw rozwoju logistyki jako systemowej nauki zarządzania. Znacząco zmienia relacje między przedsiębiorstwami, wykorzystując takie systemy, jak SCM, DCM i logistyka trzeciej strony – 3PL stanowiące nowy etap rozwoju logistyki. Ponadto artykuł wskazuje też, że logistyka jest dziś ważnym czynnikiem rozwoju gospodarki, integralną częścią zarządzania przedsiębiorstwem, istotną częścią nauki o zarządzaniu.

**Słowa kluczowe:** historia logistyki, przepływy materiałowe, czynniki dynamiczne, SCM, 3PL.

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## SIMPLICITY OF RUNNING BUSINESS IN GEORGIA – PRESENT AND FUTURE DEVELOPMENT

Creating favorable conditions for the development of the private sector – and in such a way that the poorest sections of the population can benefit from it – suggests the creation of appropriate business regulation conditions under which new vigorous entrepreneurs, regardless of gender and national origin, who have promising ideas, will be able to open enterprises, firms will be able to invest and develop, creating additional jobs. To carry out business activities, effective rules are required – norms that establish and clarify property rights, ensure a reduction in the costs associated with resolving disputes; norms that ensure the predictability of business transactions and the trust of partners, protection from abuse. Comprehensive criteria for monitoring business development have been developed by the World Bank and every year they conduct a corporate survey of managers of various firms (World Bank's Doing Business project). The purpose of the research is to ensure the adoption of rules that are effective, information about which is accessible to all and which are easy to apply.

In the following paper, I tried to answer the question which is interesting many foreign investors – it easy to run a business in Georgia? To answer this question, I used World Bank Doing Business project. The aim of the study is only to provide the leading business representatives with an evidence base for policy development and public data to study the impact of business regulation systems on economic outcomes such as productivity, investment, reducing bureaucracy, corruption, unemployment, poverty etc.

**Keywords:** Competitiveness, Country's Strategy, Ranking, Assessment Criteria, International Business.

### 1. INTRODUCTION

The simplicity of starting a business in the country (generally in the world) and therefore its business strategy depends on the business environment of the country, which in turn contributes to the growth of the economy and the growth of private sector. The economic environment of Georgia is evaluated annually by various international and local organizations. Estimates of international organizations are mainly based on reports, new laws and legislative amendments. These assessments are not directly related to entrepreneurs'

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opinions and specific problems. The business environment is a social, technological, economic and political environment that affects the company's decisions, strategies, processes and ultimately determines business opportunities. There is a long way to form a successful business environment in the country, and also there is a need for strong institutions, stable legislative regulation, and perhaps the most important: the existence of strong culture and traditions of running a business.

The position of international organizations, local experts and Georgian entrepreneurs is common in that the business environment has been significantly improved over the last few years. In general, doing business in Georgia is relatively simplified. In assessing business environment, the attractiveness of foreign investors should be taken into account. To attract large financial resources, first of all it's necessary to ensure stability. No matter how low the tax rate will be, if there is no stable legislative and political environment in the country, it will be impossible to talk about the developed business environment.

Development of business environment of Georgia is characterized by a positive trend, mainly caused by legislative reforms (tax, customs, licenses and permits etc.). It's necessary to improve and simplify the procedural parts of the legislative sphere and increase the level of relevant references.

The role of the state is naturally important for ensuring the success of the country's economy, but it is important to achieve the success of the environment and other sectors of the society – the media, the NGOs and the private sector.

Despite the trends in the improvement of the business environment, the Georgian business climate continues to face a number of challenging challenges<sup>2</sup>, with the establishment of a well-organized dialogue between the state and the private sector.

The objectives of state extraterritorial strategies may include the anchoring of global production networks in a state (especially the command and control functions of these networks), the opening of export markets to support the domestic agglomeration of production for export, and the stimulation of outward FDI to extend supply chains from the home market<sup>3</sup>. State capacities to pursue such strategic goals are geographically uneven, and underdevelopment constrains the set of strategic options for extraterritorial accumulation relative to the options of advanced capitalist states<sup>4</sup>.

Many problems of international firms, which doing business, arise the greater part as the result of a general policy adopted by the states by which they attempt to exclude all outsiders from engaging commercial activities in their boundaries<sup>5</sup>. The business which must be transacted by a foreign corporation to permit service of process must be such as to warrant the inference that the corporation is present. To subject such a corporation to

<sup>2</sup> A. Rzepka, I. Masurashvili, *Strategic perspectives for Georgian business – an analysis for medium – sized enterprises in EU and Georgia*, “Modern Management Review 2016”, Vol. XXI, 23 (3/2016), p. 115–129.

<sup>3</sup> N.A. Phelps, M. Power, R. Wanjiru, *Learning to compete: Communities of investment promotion practice in the spread of global neoliberalism* [In:] *Neoliberalization: States, networks, peoples*, ed. K. England, K. Ward, Malden, 2007, p. 375–376.

<sup>4</sup> S. Schueth, *Assembling International Competitiveness: The Republic of Georgia, USAID, and the Doing Business Project*, “Economic Geografy” 2011, Vol. 87, No. 1, p. 55.

<sup>5</sup> A. Rzepka, *Inter-organizational relations and their influence on the innovativeness of enterprises in the Podkarpackie region*, *Development Economics and Innovation: Challenges and Solutions*, Proceedings of Materials of 4th International Scientific and Practical Conference (29–30 September 2017), Tbilisi 2017, p. 101–106.

taxation for doing business, the transactions must not only show that the corporation is present but also that it is active. In order that qualification be rendered necessary, the corporation must not only be present and active, but its activity must be continuous<sup>6</sup>.

Last years two broad sets of facts about regulation of international firms in the developing countries have been established through both cross national and individual country research. I agree Mary Hallward-Driemeier and Lant Pritch, that the first set of facts, established through sources including the „Doing Business” indicators from the World Bank, is that firms that attempt full regulatory compliance will face an extremely costly and time-consuming process. The second set of facts from a variety of sources shows that in practice, firms in developing countries are often able to sidestep the “de jure” legal rules, which makes intuitive sense because many developing countries have low rankings by international standards in categories like „role of law”, „bureaucratic quality”, „government effectiveness” and control of corruption<sup>7</sup>.

Evidence on the de jure legal and regulatory requirements facing firms often draw on evidence from the World Bank's Doing Business project, which in turn is built on the pioneering work of De Soto<sup>8</sup> (1989) in Peru and others<sup>9</sup>.

## 2. WORD BANK'S DOING BUSINESS PROJECT

Effective development international communication is the result of a logical series of steps that demands a consistent approach. The steps are defining goals, identifying, stakeholders, and developing messages. The great importance of functioning official and regulatory system in creating contemporary high effective global market economy is now large accepted.

Simplicity of doing business – Creating favorable environmental conditions for investments (security in the country, tax payments, corruption indexes, business registration terms, etc.) contributes to attracting foreign investors in the country, expanding existing corporations and establishing new companies, which leads to the development of international market relations and globalization processes.

There is scarcely a business pursued requiring the expenditure of large capital, or the union of large numbers, that is not carried on by corporations. It is not too much to say that the wealth and business of the country are to a great extent controlled by them. And if, when composed of citizens of one country, their corporate powers and franchises could be exercised in other countries without restriction, it is easy to see that with the advantages thus possessed, the most important business of those countries would soon pass into their hands. The principal business of every country would, in fact, be controlled by corporations created by other countries.

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<sup>6</sup> Elcanon Isaacs, *An Analysis of Doing Business*, “Columbia Law Review” 1925, Vol. 25, No. 8, p. 1018–1045.

<sup>7</sup> M. Hallward-Driemeier, L. Pritchett, *How Business is Done in the Developing World: Deals versus Rules*, “The Journal of Economic Perspectives” 2015, Vol. 29, No. 3, p. 121–140.

<sup>8</sup> H. De Soto, *The Other Path: The Invisible Revolution in the Third World*, London 1989.

<sup>9</sup> S. Djankov, R. La Porta, F. Lopez-De-Silanes, A. Shleifer, *The Regulation of Entry*, “Quarterly Journal of Economics” 2002, 117(1); S. Djankov, R. La Porta, F. Lopez-de-Silanes, A. Shleifer, *Corrupts*, “Quarterly Journal of Economics” 2003, 118(2); S. Djankov, C. McLiesh, A. Shleifer, *Private Credit in 129 Countries*, “Journal of Financial Economics” 2007, 84(2).

“As a result of this distrust on the part of countries the foreign corporation finds itself confronted by numerous disabilities when it enters another state to do business. For instance, it may be required to comply with the local ... tax laws which are also imposed on individuals and domestic corporations. It no doubt may be required to conform to restrictions which are placed only on parties which enter the country”<sup>10</sup>.

“It must often, in addition, submit to numerous burdens for which foreign corporations are especially singled out. These may be, among others, requirements that agents be appointed for service of process, discriminatory taxes, registration as a prerequisite of doing business, or preference of local creditors in the distribution of assets”<sup>11</sup>.

The Doing Business report collects data for a terrain over which there had been only scant knowledge previously... With such interest, it's no surprise that the Doing Business report has come under intense scrutiny. In 2012, following discussions by its board, the World Bank commissioned an independent review to evaluate the project... In broad terms, the Doing Business report has been criticized for the way in which the data are collected and whether they reflect the business and regulatory environment accurately. Concerns were raised about whether the construction of the survey fostered a “deregulation bias”.

A measure of labor market regulation was a particular focus of concern, although this measure had already been removed from the set of measures used to determine aggregate rankings. Particular attention has focused on whether it is valid to collect the separate rankings into an aggregate ranking. A number of countries objected to being ranked at all.

Of course, alongside the peculiarities of the Doing Business report data, there are the usual concerns about the use of data that permeate empirical research in economics. Some researchers have used the data as a right-hand-side variable to “explain” outcomes of interest. Others put the data on the left-hand-side and ask how politics and institutions influence the business climate. In all cases, the usual concerns apply as to what inferences about causality can be drawn from such exercises. There is also a concern about the mapping from the Doing Business indicators to the conceptual categories that economic theory suggests ought to be important. Because so many researchers appear to equate “empirical evidence” with interpreting regression coefficients, this point merits discussion<sup>12</sup>.

Doing Business focuses on regulation that affects small and medium-size enterprises, operating in the largest business city of an economy, across 11 areas. Ten of these areas – starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency – are included in the distance to frontier score and ease of doing business ranking. Doing Business also publishes indicators on labor market regulation which are not included in the distance to frontier score or ease of doing business ranking. The economic literature has shown the importance of such regulations for firm and job creation, international trade and financial inclusion.

Doing Business presents quantitative indicators on business regulation and the protection of property rights that can be compared across more than 100 economies.

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<sup>10</sup> Elcanon Isaacs, *An Analysis...*, p. 1018–1045.

<sup>11</sup> *Ibidem*, p. 1018–1045.

<sup>12</sup> T. Besley, *Law, Regulation, and the Business Climate: The Nature and Influence of the World Bank Doing Business Project*, “The Journal of Economic Perspectives” 2015, Vol. 29, No. 3. p. 99–120.

In 2018 year marks the World Bank 15th Doing Business report (reforming to create jobs)<sup>13</sup>, where it's possible to read, that - since the inception of the project in 2003, the global business regulatory environment has changed dramatically. Governments around the world have embraced and nurtured advances in information technology to reduce bureaucratic hurdles and increase transparency. Today, in 65 of the 190 economies covered by Doing Business, entrepreneurs can complete at least one business incorporation procedure online, compared with only nine of the 145 economies measured in Doing Business 2004. Furthermore, in 31 economies it is now possible to initiate a commercial dispute online. This kind of progress can also be observed in the other areas measured by Doing Business. Doing Business measures aspects of business regulation and their implications for firm establishment and operations. It does not include all the issues that are relevant for businesses' decisions, but it does cover important areas that are under the control of policy makers. Governments worldwide recognize the economic and political benefits of improved business regulation. In fact, 119 of the 190 economies measured by Doing Business 2018 enacted at least one business regulation reform in 2016/17. Of these, 79.8% implemented at least one reform for a second consecutive year and 64.7% for a third.

Business regulation can enable new ideas to come to life. Conversely, in an economy where business regulation is cumbersome or ambiguous, it may be less willing to start their own company. In this case, the economy forfeits a new entrepreneur - as well as the associated capital investment and job creation. In turn, consumers have fewer, lower quality and more expensive product choices. Such a scenario highlights the way in which cumbersome regulation can distort resource allocation by stifling entrepreneurial endeavors in favor of maintaining a less optimal status quo.

Doing Business measures the processes for starting a business, obtaining a building permit, getting an electricity connection, transferring property, paying taxes, taking a commercial dispute to court, and resolving an insolvency case, as well as credit and equity market regulations and logistics of importing and exporting goods. There are many other factors that influence firm decisions – such as the availability of skilled labor or market size - that are not captured in Doing Business. But Doing Business focuses on key areas of interaction between the government and entrepreneurs, where policy makers and regulators can directly influence procedures to facilitate these interactions.

In addition, Doing Business measures the coverage, scope and quality of credit information available from credit registries and bureaus. When functioning well, these institutions form an essential element of an economy's financial infrastructure by strengthening access to financial services, particularly credit. By collecting and sharing credit information, such agencies reduce information asymmetries, increase access to credit for small firms, lower interest rates, improve borrower discipline and strengthen bank supervision and credit risk monitoring. Indeed, a study of a credit bureau serving the equipment finance industry in the United States found that better exchange of information between lenders results in improved repayment behavior by firms, including lower incidences of delinquencies and defaults.

This impact was stronger for firms that typically lack informational transparency, such as small and young firms.

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<sup>13</sup> <http://www.doingbusiness.org/reports/global-reports/doing-business-2018> [access: 15.05.2018].

Therefore, the rating of the countries Doing Business report is closely linked to the development of separate measures. I believe that each of these indicators needs deep analysis.

### 3. SIMPLICITY OF DOING BUSINESS IN GEORGIA – PRESENT SITUATION

Before October 1, 2012, it was a difficult situation in business administration of Georgia. After the change of government in Georgia, the attitude towards business changed radically<sup>14</sup>.

Start of business in Georgia today is very simple.

Ease of Doing Business Index (EDBI<sup>15</sup>) is the global indicator of economic competitiveness. In this paper I use the World Bank's Doing Business data to capture the business environment.

Financial or procedural barriers are almost impossible for the enterprise to register. Financial resources are crucial for business expansion and, moreover, business start. No matter how easy it's to register the company, if the finances are not available, the most promising business idea will be doomed.

Under Georgian law, legal entities are divided into two broad categories: entrepreneurial legal entities and non-profit legal entities. Individuals may also conduct business as sole proprietors without establishing any separate legal entity. Companies are required to have their own name, management and registered offices. In addition to their legal address, entrepreneurial legal entities may submit to the registration authority information about an alternative legal address and email address. Companies established in Georgia are subject to Georgian law, but agreements concluded by Georgian companies can be governed by the law agreed to between the parties, unless otherwise determined by the Georgian Act of International Private Law. Foreigners can become a partner or be appointed as director of a Georgian company and they do not need a permit to do so. In case foreigner desires to become a partner in a company, that owns agricultural land, unofficial restrictions might apply.

Legal entities for carrying out business namely: The Georgian Entrepreneurs Act (1994) defines six types of legal entities that may carry out entrepreneurial activities: Sole proprietor; Limited Liability Company; Joint Stock Company; Cooperative; Joint Liability Company; Limited Partnership.

According to the 2018 Ease of Doing Business index (EDBI) Georgia is among the top 10 countries from 190 countries. Georgia has built one of the strongest business climates over the past years, fueled by low business costs and incentives. Among the top 20 economies, Georgia, with a ranking of 9 in 2018, 16 – in 2017, and 24 – in 2016 (table 1, 2, 3, 4),

<sup>14</sup> I. Masurashvili, *Past and Future of Business Administration in Georgia*, International Conference for Academic Disciplines, Cambridge, USA. May 26–30.2013, <http://ijas2013harvard.sched.org/event/24724800be6a0b109e0ba718553d6344#.UZUO3KKnzaQ>

<sup>15</sup> The ease of doing business index is an index created by Simeon Djankov at the World Bank Group. Higher rankings (a low numerical value) indicate better, usually simpler, regulations for businesses and stronger protections of property rights. Empirical research funded by the World Bank to justify their work show that the economic growth impact of improving these regulations is strong. [https://en.wikipedia.org/wiki/Ease\\_of\\_doing\\_business\\_index](https://en.wikipedia.org/wiki/Ease_of_doing_business_index) [access: 15.05.2018].



has implemented the highest number of business regulation reforms since the launch of Doing Business in 2003 – a total of 47 (time for starting business was needed for 30 days<sup>16</sup>).

Getting credit is not the most serious problem facing businesses in any of the countries. For Georgia, doing business indicates that closing a business and getting electricity are the most important concerns. Other aspects of the business environment in Georgia are generally positive and the country scores particularly well for dealing with licenses, registering property and starting a business.

Table 1. Easy of Doing Business ranking (Top 20 economy)

DB 2018 Rank	Economy	DTF <sup>17</sup> score	DTF change
1	2	3	4
1	New Zealand	86.55	-0.18
2	Singapore	84.57	+0.04
3	Denmark	84.06	-0.01
4	Korea, Rep.	83.92	0.00
5	Hong Kong SAR, China	83.44	+0.29
6	United States	82.54	-0.01
7	United Kingdom	82.22	-0.12
8	Norway	82.16	-0.25
9	Georgia	82.04	+2.12
10	Sweden	81.27	+0.03

DB 2018 Rank	Economy	DTF score	DTF change
11	Macedonia, FYR	81.18	-0.21
12	Estonia	80.80	+0.05
13	Finland	80.37	0.11
14	Australia	80.14	0.00
15	Taiwan, China	80.07	+0.41
16	Lithuania	79.87	+1.05
17	Ireland	79.51	-0.19
18	Canada	79.29	-0.09
19	Latvia	79.26	-0.79
20	Germany	79.00	-0.19

Source: <http://www.doingbusiness.org> [access: 15.05.2018].

The Georgia is the only lower-middle-income one economy on the list, while Macedonia, Former Yugoslav Republic, is the only upper-middle-income (table 1). To date, no low-income economy has reached the top 20 group. On Table 1, where it's possible to see, that from this top 20 group only Georgia has +2.12 (high) change in DTF.

From Table 2 it's possible to see that overall rank DTF (in 2017-2018) increased and changed by 2.12% (from 79.92 to 82.04), from here starting a business by – 0.01%, dealing with Construction Permits – 0.02%, Getting Electricity – 0.55%, Protecting Minority Investors – 5%, Paying Taxes – 0.04% and resolving insolvency<sup>18</sup> – 15.57%.

<sup>16</sup> <http://www.doingbusiness.org/reports/global-reports/doing-business-2004> [access: 15.05.2018].

<sup>17</sup> The distance to frontier (DTF) measure shows the distance of each economy to the “frontier,” which represents the best performance observed on each of the indicators across all economies in the Doing Business sample since 2005. An economy’s distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier. The ease of doing business ranking ranges from 1 to 190.

<sup>18</sup> The ranking of economies on the ease of resolving insolvency is determined by sorting their distance to frontier scores for resolving insolvency. These scores are the simple average of the distance to frontier scores for the recovery rate and the strength of insolvency framework index.

Table 2. Doing Business in Georgia 2018 (2017, 2016) [out of 190 (189–in 2016) countries]

Topics	DB 2018 Rank	DB 2017 Rank	DB 2016 Rank	DB 2018 DTF	DB 2017 DTF	Change in DTF (2018-2017) (% points)
Overall	9	16	24	82.04	79.92	2.12
Starting a Business	4	8	6	97.84	97.83	0.01
Dealing with Construction Permits	29	8	11	77.57	77.55	0.02
Getting Electricity	30	39	62	84.32	83.77	0.55
Registering Property	4	3	3	92.85	92.85	..
Getting Credit	12	7	7	85.00	85.00	..
Protecting Minority Investors	2	7	20	81.67	76.67	5.00
Paying Taxes	22	22	40	87.14	87.10	0.04
Trading across Borders	62	54	13	82.43	82.43	..
Enforcing Contracts	7	16	78	75.97	75.97	..
Resolving Insolvency	57	106	101	55.59	40.02	15.57

Source: Doing Business-2018, 2017, 2016. Full Report. World Bank, <http://www.doingbusiness.org> [access: 15.05.2018].

The Ease of doing business index ranks countries against each other based on how the regulatory environment is conducive to business operation stronger protections of property rights. Economies with a high rank (1 to 20) have simpler and more friendly regulations for businesses.

The Doing Business project surveys experts concerning the legally required time and costs of regulatory compliance for various aspects of private enterprise – starting a firm, dealing with construction permits, trading across borders, paying taxes, getting credit, enforcing contracts, and so on – around the world. Each year, the Doing Business reports document large numbers of routine business procedures that would take many days.

In recent years, Doing Business introduced improvements to all of its indicator sets. In Doing Business 2015, Resolving Insolvency introduced new measures of quality, while Getting Credit and Protecting Minority Investors broadened their existing measures. In Doing Business 2016, Dealing with Construction Permits, Getting Electricity, Registering Property and Enforcing Contracts also introduced new measures of quality, and Trading across Borders introduced a new case scenario to increase the economic relevance. In Doing Business 2017, Paying Taxes introduced new measures of postfiling processes and Starting a Business, Registering Property and Enforcing Contracts added gender components [“Doing Business 2018 – reforming to create jobs”].

Ease of Doing Business in Georgia averaged 14.90 from 2008 until 2017, reaching an all time high of 24 in 2014 and a record low of 8 in 2013 (chart 1).

Table 3. Ease of Doing Business in Georgia<sup>19</sup> (2018)

Georgia Business	Last	Previous	Highest	Lowest	Unit
Industrial Production	20.60	21.80	35.10	-5.00	percent
Manufacturing Production	0.90	24.30	41.30	-4.30	percent
Changes in Inventories	512.00	139.30	512.00	-261.70	GEL Million
Leading Economic Index	5.60	5.50	8.40	-0.80	percent
Internet Speed	8774.17	8242.93	8774.17	535.00	KBps
IP Addresses	508938.00	489558.00	527752.00	40728.00	IP
Mining Production	0.00	10.20	119.80	-66.39	percent
Competitiveness Index	4.28	4.32	4.32	3.75	Points
Competitiveness Rank	67.00	59.00	93.00	59.00	
Business Confidence	28.00	27.00	40.40	3.60	Index Points
Ease of Doing Business	9.00	16.00	24.00	8.00	
Corruption Index	56.00	57.00	57.00	18.00	Points
Corruption Rank	46.00	44.00	133.00	44.00	

Source: <http://www.doingbusiness.org> (Last updated – May of 2018).



Chart 1. Ease of Doing Business in Georgia (in 2008–2018)<sup>20</sup>

Source: [tradingeconomics.com](http://tradingeconomics.com) World Bank [access: 15.05.2018].

<sup>19</sup> This table includes a chart with historical data for Ease of Doing Business in Georgia. Ease of Doing Business in Georgia – actual data, historical chart and calendar of releases.

<sup>20</sup> <http://www.doingbusiness.org> [access: 15.05.2018].

According to the most recent data, good regulatory practices are present in almost all of the world's regions. Aside from 28 OECD high-income economies, the 50 highest ranked economies include 13 from Europe and Central Asia, five from East Asia and the Pacific, two from Sub-Saharan Africa and one each from the regions of Latin America and the Caribbean and the Middle East and North Africa. Each region also has a relatively wide spectrum of strong and weak performers. Economies are ranked based on the distance to frontier score. This measure shows the distance of each economy to the "frontier," which represents the best performance observed on each of the indicators across all economies in the Doing Business sample.

The overall measure of the ease of doing business gives an indication of where it is easier for domestic small and medium size firms to do business. Although the economies with the most business friendly regulation in this year's ease of doing business ranking are relatively diverse, the economies within the top 20 share some common features. Fourteen of the top 20 are OECD high-income economies; three are from Europe and Central Asia and three from East Asia and the Pacific. Eighteen of the top 20 are classified as high-income economies. The top 5 performers are New Zealand, Singapore, Denmark, the Republic of Korea and Hong Kong SAR, China. The former Yugoslav Republic of Macedonia is the only upper-middle-income economy on the list, while Georgia is the only lower-middle-income one. To date, no low-income economy has reached the top 20 group. However, being wealthy does not guarantee a front-runner position in the ease of doing business ranking; many high-income economies still have room for progress. Having few bureaucratic hurdles, robust legal institutions and laws and regulations that are based on international good practices is what matters most for a good performance in the ease of doing business ranking.

In OECD high-income economies, for example, New Zealand, Denmark and Korea have the highest overall distance to frontier scores at 86.55, 84.06 and 83.92, respectively. Georgia has 82.04 (table 1, 2). Conversely, Greece, Luxembourg and Chile have the lowest scores in this group, at 68.02, 69.01 and 71.22. However, the OECD high-income group has the smallest gap between the highest and the lowest scores, of only 18.53 percentage points. Sub-Saharan Africa has the widest gap (57.56 percentage points), with a regional average score of only 50.43 – the lowest across all regions. Among the economies of Sub-Saharan Africa, Mauritius has the highest distance to frontier score (77.54), while Somalia the lowest (19.98) ["Doing Business 2018 – reforming to create jobs"].

To start a business in the high-income OECD countries, for example – in New Zealand 1 day, in lower-middle-income country – Georgia 4 day, in South Africa – 136 day. Similarly, following the required procedures to get a construction permit would take an average of 94 days in South Africa, 185 days in Afghanistan, 29 days in Georgia, 12 days in Lithuania and 3 days in New Zealand. Clearly, most developing countries of the world do not make it fast or easy to comply with the regulations that govern business.

Researcher-scientists have found benefits associated with improvements in both the overall "Ease of doing business" and its components. Indicators of starting a business (and which is used to calculate methodologically) are: the number of procedures entrepreneurs can expect to go through to start up and formally operate an industrial or commercial business, as well as the time and cost to complete these procedures and the paid-in minimum capital requirement as a percentage of Gross National Income (GNI) per capita (table 4).

Table 4. Indicator of starting business

#	Indicator	Georgia	Europe & Central Asia	OECD high income	Overall Best Performer
1	Procedure – Men (number) <sup>21</sup>	2	5.2	4.9	1.00 (New Zealand)
2	Time – Men (days) <sup>22</sup>	2	10.1	8.5	0.50 (New Zealand)
3	Cost – Men (% of income per capita) <sup>23</sup>	2.5	4.4	3.1	0.00 (United Kingdom)
4	Procedure – Women (number) <sup>24</sup>	2	5.2	4.9	1.00 (New Zealand)
5	Time – Women (days) <sup>25</sup>	2	10.1	8.5	0.50 (New Zealand)
6	Cost – Women (% of income per capita) <sup>26</sup>	2.5	4.4	3.1	0.00 (United Kingdom)
7	Paid-in min. capital (% of income per capita) <sup>27</sup>	0.0	3.4	8.7	0.00 (113 Economies)

Source: Doing Business-2018. Full Report. Word Bank [access: 15.05.2018].

#### 4. DOING BUSINESS IN GEORGIA – FUTURE PERSPECTIVES

In order to facilitate business, the Government of Georgia has announced a new changes a month ago (March, 2018) to increase the share of small and medium-sized businesses in the country's economy:

- One of them is the unique event in world practice, changes to small and medium entrepreneurs to reduce the symbolic turnover of 1% – up to 5%. This is about 120 thousand small business entrepreneurs in Georgia;

<sup>21</sup> The total number of procedures required for a married men to register a firm. A procedure is defined as any interaction of the company founders with external parties (for example, government agencies, lawyers, auditors or notaries).

<sup>22</sup> The total number of days required for a married men to register a firm. The measure captures the median duration that incorporation lawyers indicate is necessary to complete a procedure with minimum follow-up with government agencies and no extra payments.

<sup>23</sup> Cost is recorded as a percentage of the economy's income per capita. It includes all official fees and fees for legal or professional services if such services are required by law for a married men.

<sup>24</sup> The total number of procedures required for a married women to register a firm. A procedure is defined as any interaction of the company founders with external parties (for example, government agencies, lawyers, auditors or notaries).

<sup>25</sup> The total number of days required for a married women to register a firm. The measure captures the median duration that incorporation lawyers indicate is necessary to complete a procedure with minimum follow-up with government agencies and no extra payments.

<sup>26</sup> The amount that the entrepreneur needs to deposit in a bank or with a notary before registration and up to 3 months following incorporation and is recorded as a percentage of the economy's income per capita.

<sup>27</sup> The amount that the entrepreneur needs to deposit in a bank or with a notary before registration and up to 3 months following incorporation and is recorded as a percentage of the economy's income per capita.

- The enterprise with a turnover of 500 thousand GEL will be considered as a small business category (up to now 100 thousand GEL turnover);
- Organization of economic activity will be exempt from profit tax and they will be transferred to the “Distributed Profit” tax. Exemption from the Value Added Tax (VAT) in Georgia – production of milk and dairy products; Air services, air transportation and aviation works, as well as marine vehicles.
- New also in the used car business – in case of re-export of car dealers, the excise will be returned in 100% full (it was 50%);

These changes are aimed at encouraging small and medium businesses to be even more encouraged, and increase the share of small and medium entrepreneurship in GDP. It is expected that in the medium term about 30-40% will be an increase in the number of people who will benefit from these benefits. This will significantly facilitate the creation of additional jobs, significantly increase the payment base in Georgia and, most importantly, help the government solve two serious problems in the Georgian economy: unemployment and poverty.

## 5. SUMMARY

For any investor it's interesting to answer the question – is it easier to do business in Georgia? If judge the according of last years “Word Bank Doing Business” indicators, it's possible definitely answer, yes – of course, yes.

However, I believe that the success rate achieved in international economic ratings can be further improved. The state policy has a great impact on the development of the country's competitiveness in creating favorable climate of business: Business regulatory legislation has been significantly improved and has become much more liberal. The improvement process demanded frequent change of laws – new laws were adopted, and a number of amendments included in old laws. For example, in the Tax Code, which has been in force since 2005, it has included about 40 change packages.

In addition, I think small and medium business loan terms (percentages and deadlines) should be also significantly simplified. It's necessary to prepare general instructions and explanations, which will help most small and medium business representatives to apply for them.

## REFERENCES

1. Besley T., *Law, Regulation, and the Business Climate: The Nature and Influence of the World Bank Doing Business Project*, “The Journal of Economic Perspectives” 2015, Vol. 29, No. 3.
2. De Soto H., *The Other Path: The Invisible Revolution in the Third World*, London 1989.
3. *Development business sector and labor market. Global perspective in labour market*, “Ame- lia” Aneta Siewiorek Publishing House, Rzeszow 2017.
4. Djankov S., La Porta R., Lopez-de-Silanes F., Shleifer A., *Courts*, “Quarterly Journal of Economics” 2003, 118(2).
5. Djankov S., La Porta R., Lopez-De-Silanes F., Shleifer A., *The Regulation of Entry*, “Quarterly Journal of Economics” 2002, 117(1).

6. Djankov S., McLiesh C., Shleifer A., *Private Credit in 129 Countries*, "Journal of Financial Economics" 2007 84(2).
7. Doing Business 2018 – reforming to create jobs, <http://www.doingbusiness.org/reports/global-reports/doing-business-2018>.
8. Elcanon Isaacs, *An Analysis of Doing Business*, "Columbia Law Review" 1925, Vol. 25, No. 8.
9. Foreign Direct Investment Trends and Statistics. International Monetary Fond. October 28, 2003.
10. Hallward-Driemeier M., Lant Pritchett L., *How Business is Done in the Developing World: Deals versus Rules*, "The Journal of Economic Perspectives" 2015, Vol. 29, No. 3.
11. Masurashvili I., *Past and Future of Business Administration in Georgia*, International Conference for Academic Disciplines. Cambridge, Harvard University. USA. May 26–30. 2013, <http://ijas2013harvard.sched.org/event/24724800be6a0b109e0ba718553d6344#UZUO3KKnzaQ>.
12. Phelps N.A., Power M., Wanjiru R., *Learning to compete: Communities of investment promotion practice in the spread of global neoliberalism* [In:] *Neoliberalization: States, networks, peoples*, ed. K. England, K. Ward, Malden, Mass.: Blackwell 2007.
13. Rzepka A., *Inter-organizational relations and their influence on the innovativeness of enterprises in the Podkarpackie region*, Development Economics and Innovation: Challenges and Solutions, Proceedings of Materials of 4th International Scientific and Practical Conference (29–30 September 2017), Tbilisi 2017.
14. Rzepka A., Masurashvili I., *Current state of the Business Administration in Georgia and his role in Global Economy*, Proceedings in Scientific Conference SCIECONF-2014. Zilina, Slovakia. June 9–13, 2014.
15. Rzepka A., Masurashvili I., *Strategic perspectives for Georgian business – an analysis for medium Strategic perspectives globalisation Georgian business – an analysis for medium – sized enterprises in EU and Georgia*, "Modern Management Review" 2016, Vol. XXI, 23 (3/2016).
16. Schueth S., *Assembling International Competitiveness: The Republic of Georgia, USAID, and the Doing Business Project*. "Economic Geografy" 2011, Vol. 87, No. 1.

### ŁATWOŚĆ PROWADZENIA BIZNESU W GRUZJI – OBECNY I PRZYSZŁY ROZWÓJ

Stworzenie sprzyjających warunków dla rozwoju sektora prywatnego w taki sposób, aby skorzystały z niego najbiedniejsze części społeczeństwa jest uzależnione od odpowiednich warunków regulacji działalności gospodarczej w ramach których nowi energiczni przedsiębiorcy, bez względu na płeć i pochodzenie narodowe są w stanie otwierać przedsiębiorstwa, mogą inwestować i rozwijać się, tym samym tworząc dodatkowe miejsca pracy. Do prowadzenia działalności gospodarczej wymagane są skuteczne zasady – normy, które ustanawiają i wyjaśniają prawa własności, zapewniają zmniejszenie kosztów związanych z rozwiązywaniem sporów; normy zapewniające przewidywalność transakcji biznesowych i zaufanie partnerów oraz ochronę przed nadużyciami. Kompleksowe kryteria monitorowania rozwoju biznesu zostały opracowane przez Bank Światowy i każdego roku zostaje przeprowadzana ankieta korporacyjna dla menedżerów różnych firm (projekt Doing Business Banku Światowego). Celem badań jest zapewnienie przyjęcia skutecznych przepisów, których informacja jest dostępna dla wszystkich i które są łatwe do zastosowania.

W artykule autor podjął próbę odpowiedzi na pytanie, które jest interesujące dla wielu inwestorów zagranicznych – czy łatwo jest prowadzić firmę w Gruzji? Aby odpowiedzieć na to pytanie wykorzystano projekt World Bank Doing Business. Celem tego badania jest zapewnienie czołowym przedstawicielom biznesu bazy danych do opracowania polityki i danych publicznych w celu zbadania wpływu systemów regulacji przedsiębiorstw na wyniki gospodarcze, takie jak produktywność, inwestycje, zmniejszenie biurokracji, korupcja, bezrobocie, ubóstwo itp.

**Słowa kluczowe:** konkurencyjność, strategia kraju, ranking, kryteria oceny, biznes międzynarodowy.

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## USING THE EMERGENCY NOTIFICATION SYSTEM FOR SOCIALLY EXCLUDED PEOPLE ON THE EXAMPLE OF THE DEAF IN POLAND

Implemented in Poland since 2011, the emergency notification system is primarily based on direct, telephone, verbal contact between the person making the application and the operator of the emergency number in the Emergency Response Centre (CPR), a police officer in county command, firefighter in county command of the State Fire Service, or by emergency medical dispatcher. It makes that with such assumptions, it becomes unavailable for the deaf. Such people cannot make verbal contact by phone. Even if in your daily life can make the words and communicate with the caller through a direct reading from his lips, then by the inability to hear the telephone becomes impossible. A deaf person can make contact and exchange information either through visual and communication in sign language, or by written communication. In view of the widespread use even among the deaf mobile phones there is a possibility to use for sending alerts short text messages, so-called "SMS." In this article Author presents his experiences and the insights related to the emergency notification and the possibility to use its functionality by people with auditory disability. experiences were collected during an active participation of the author in activities related to the creation of the emergency notification system in Podkarpacie Region and during implementation SMS gateway designed to receive alerts from the deaf from the region in 2014 in the Emergency Notification Centre in Rzeszow.

**Keywords:** Emergency Notification System, ENS, Emergency Notification Centre, ENC, SMS, deaf.

### 1. AN ANALYSIS OF THE AREA OF CONSIDERATIONS

Deafness is a name that identifies a disability involving the inability to receive (hear) the sounds caused by dysfunction of the body. A deaf person is a man to whom the loss or substantial impairment of the hearing analyzer makes it impossible to understand human speech through hearing and for whom in work and all the tasks in life the hearing is of no practical significance<sup>2</sup>. There are many types of deafness and each of them has influence on different aspects of the daily operation of the deaf.

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<sup>2</sup> Com. <http://pedagogikaspecjalna.tripod.com/notes/deafness.html#1> (access: 1.12.2014).

People who do not hear from birth function, and otherwise those who have heard for some time, and then, as a result of various factors, they lost hearing.

The first ones are not familiar with the world of sound in general. It does not exist for them. Perhaps the sound of appropriate frequency and energy is felt by them as a specific tremor of structure on which they stand, or touch. But nothing more.

The latter can remember what it is like to be able to hear. Can remember and use the skills and knowledge that they possessed at the time when I heard it. Of course, many in this regard depends on when the hearing loss occurred and how long they could actively participate in the educational process. Their contributing to the daily life is different from participation deaf from birth. This is particularly evident in the use of written language. If you are deaf from birth often have problems with writing and reading sentences and even individual words. Do not pay attention to grammar, and often do not know how to write or read<sup>3</sup>.

According to the data of the Census of 2011 in Poland<sup>4</sup> live about 100 thousand of the deaf (com. Table 1). This can be a single dysfunction, but it can also be one of the few, which makes that person face even more difficult challenges in life. The data show that injuries and diseases of hearing organ occur with the same frequency among women and among men. These are people of all ages, but the analysis of the graph shown in Figure 1 shows that among the disabled practically every 7<sup>th</sup> person has problems with hearing.

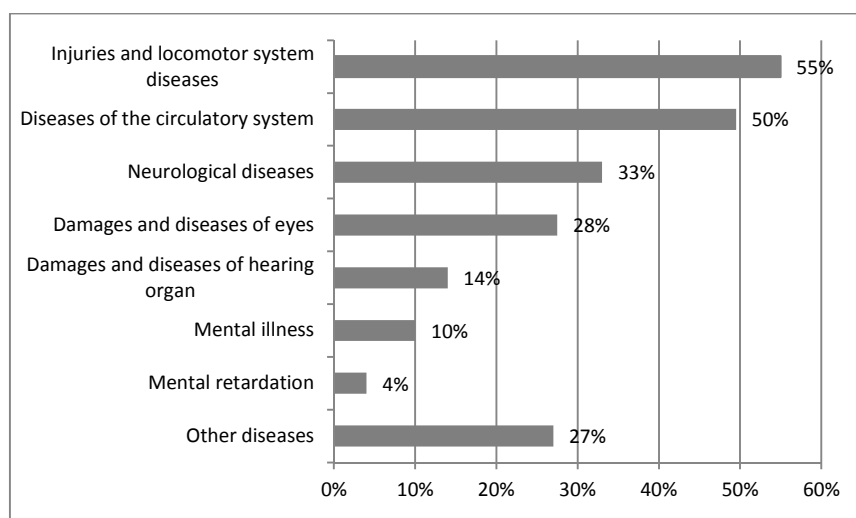


Figure 1. The occurrence of hearing disorders in people with disabilities (in %)

Source: Own elaboration based on the CSO report data entitled "Health of the Polish population in 2009".

<sup>3</sup> It is not the intention of the author to hurt anyone in the scope described in this paper, nor diminish the life skills or accomplishments. It only discusses the problem from the point of view of scientific reliability.

<sup>4</sup> File: osoby\_niepelnosprawne\_nsp2011.xls, table 9(15), source: <http://www.niepelnosprawni.gov.pl/niepelnosprawnosc-w-liczbach-/dane-demograficzne/informacje-i-dane-demograficzne/> (access: 3.12.2014).

Table 1. Deaf population in Poland, broken down by economic groups and performance limitations

Number of the deaf:	In total	Men:	Women:	City:	Village:
		<b>98 981</b>	<b>54 139</b>	<b>44 842</b>	<b>65 487</b>
<b>According to economic groups</b>					
Pre-production	8 856	5 099	3 756	4 963	3 892
Production	43 978	26 943	17 035	28 804	15 174
Post-production	46 147	22 097	24 050	31 720	14 427
<b>According to performance limitations:</b>					
total	5 203	2 821	2 382	3 053	2 150
serious	18 195	9 896	8 299	12 171	6 024
moderate	75 583	41 422	34 161	50 264	25 320

Source: Own elaboration based on data obtained from the Office of the Government Plenipotentiary on Persons with Disabilities<sup>5</sup>.

In fact, the situation is much more onerous by the fact that the hearing disability is often accompanied by another, which brings additional difficulties. Particularly difficult is the situation of people who neither hear nor see.

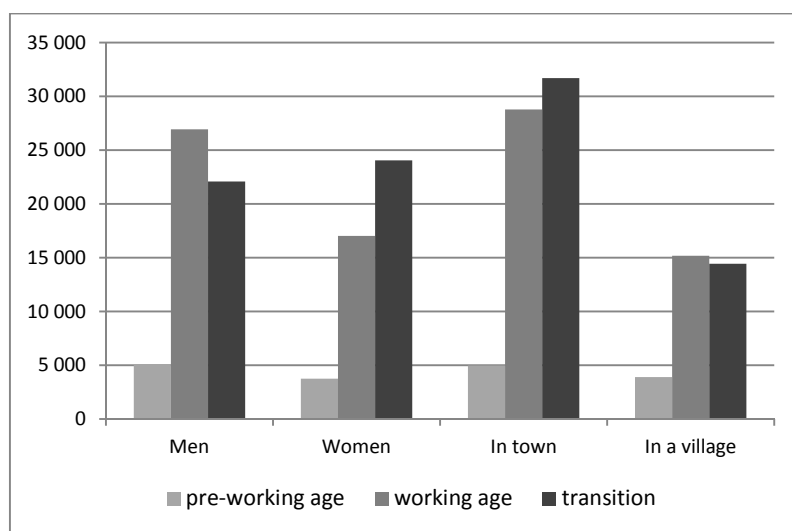


Figure 2. The age breakdown of the population of the deaf by economic groups

Source: Own elaboration of the Author.

<sup>5</sup> Com. <http://www.niepelnosprawni.gov.pl/niepelnosprawnosci-w-liczbach-/dane-demograficzne/informacje-i-dane-demograficzne/> (access: 3.12.2014).

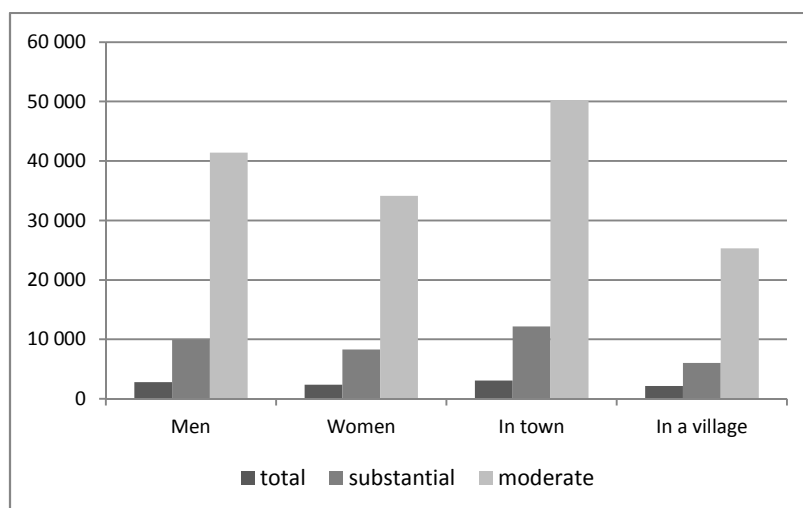


Figure 3. Breakdown of the deaf population due to the degree of deafness

Source: Own elaboration of the Author.

Table 2. People with hearing disabilities aged 15 years or more. The division depending on the degree of disability

Specification	In total	15-19 years old	20-29 years old	30-39 years old	40-49 years old	50-59 years old	60-69 years old	70-79 years old	80 years old and more
Marking of the groups on diagrams:		1	2	3	4	5	6	7	8
<b>Hearing the talk with several people (in thousand)</b>									
without any difficulty	25075,4	1909,9	4846,9	4797,0	4125,2	4729,4	2701,9	1497,0	468,1
with some difficulty	2411,8	19,8	88,3	104,9	163,7	433,8	487,8	690,8	422,7
with high difficulty	478,3	2,4	4,1	5,3	27,0	67,1	77,2	132,4	162,8
does not hear	45,7		1,1	0,7	3,4	5,5	7,9	12,5	14,5
no data	35,9		4,1	0,8	6,6	10,0	10,2	2,7	1,4
<b>Use of hearing aid (in thousand)</b>									
yes	1032,7	54,2	132,8	116,4	100,8	166,6	112,6	178,0	171,4
no	30887,3	2391,9	5942,5	5524,2	4732,7	5602,5	3358,4	2296,3	1038,8
deaf or almost not hearing person	73,1	0,2	0,9	4,0	0,2	10,6	7,4	25,3	24,5
no data	2,2	-	1,3	0,7	-	-	-	0,3	-

Source: Own elaboration based on the CSO report data<sup>6</sup> entitled "Health of the Polish population in 2009".

<sup>6</sup> Report published on: [http://old.stat.gov.pl/cps/rde/xbcr/gus/ZO\\_stan\\_zdrowia\\_2009.pdf](http://old.stat.gov.pl/cps/rde/xbcr/gus/ZO_stan_zdrowia_2009.pdf), p. 265 (access: 3.12.2014).

The number of the specified group of persons with disabilities (also known as “deaf-blind” or “blind-deaf”) in Poland is estimated, depending on the source<sup>7</sup>, from about 2 thousand<sup>8</sup> to about 7 thousand<sup>9</sup> of people.

Analysis of the data presented in Table 2 presented graphically on the „radar” graphs<sup>10</sup> on Figure 2 illustrates the specificity of one aspect of deafness. The issue concerns the possibility of hearing and understanding the conversation in the immediate vicinity of the deaf person by several people.

The axes of graphs define the study population group aged:

1 – <15, 20) years old,

2 – <20, 30) years old,

3 – <30, 40) years old,

4 – <40, 50) years old,

5 – <50, 60) years old,

6 – <60, 70) years old,

7 – <70, 80) years old,

8 – 80 and more years old.

The graphs show that with the age of the subjects the hearing performance and opportunities to hear and understand<sup>11</sup> the interlocutor deteriorate.

Old age brings with it a significant deterioration in the life efficiency of a person<sup>12</sup>. It is natural and in most cases accepted. However, in comparison with a disability phenomenon is much more severe and noticeable. A person who is experiencing the limitations related to their body, in a special way realizes their potential’s deterioration.

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<sup>7</sup> The author draws the attention to the low reliability of the data used to develop guidelines for programs, projects, activities, or any kind of initiatives for the environment of the deaf-blind people.

<sup>8</sup> Com. Guidance on the implementation of support for the socially excluded and disadvantaged under the Operational Programme Human Capital Department of ESF Management at the Ministry of RD, Warsaw, October 2009, p. 83, source: [http://www.efs.gov.pl/dzialaniapromocyjne/Documents/Poradnik\\_dot\\_realizacji\\_wsparcia\\_dla\\_os\\_wykluczonych\\_spol\\_POKL\\_091009.pdf](http://www.efs.gov.pl/dzialaniapromocyjne/Documents/Poradnik_dot_realizacji_wsparcia_dla_os_wykluczonych_spol_POKL_091009.pdf) (access: 05.12.2014).

<sup>9</sup> Com. Report about people with disabilities in Poland, Congress of Women Press Office, Warsaw, 06.06.2011, source: [http://www.google.pl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCAQFjAA&url=http%3A%2F%2Fsamorzad.pap.pl%2Fpalio%2Fhtml.run%3F\\_Instance%3Dsamorzad\\_nowy.pap.pl%26\\_PageID%3D6%26\\_media\\_id%3D57272%26\\_filename%3DKK\\_2011\\_06.06\\_raport\\_o\\_niepelnosprawnych.pdf%26\\_mimetype%3Dapplication%2Fpdf%26\\_CheckSum%3D780010585&ei=97eBVLGvOcraurFgZAG&usg=AFQjCNH9iyEusFxmMurTwzezqyJHR42CzA&bvm=bv.80642063,d.d2s](http://www.google.pl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCAQFjAA&url=http%3A%2F%2Fsamorzad.pap.pl%2Fpalio%2Fhtml.run%3F_Instance%3Dsamorzad_nowy.pap.pl%26_PageID%3D6%26_media_id%3D57272%26_filename%3DKK_2011_06.06_raport_o_niepelnosprawnych.pdf%26_mimetype%3Dapplication%2Fpdf%26_CheckSum%3D780010585&ei=97eBVLGvOcraurFgZAG&usg=AFQjCNH9iyEusFxmMurTwzezqyJHR42CzA&bvm=bv.80642063,d.d2s) (access: 3.12.2014).

<sup>10</sup> The graphs present the issue in a qualitative, not quantitative approach.

<sup>11</sup> Shown in Figure 4 a) improvement of hearing for the study population aged 20 to 60 years old may be associated directly with the experience gained over the years that manifests in the ability to read the contents of speech from lips. Synergistic use of incomplete hearing and reading from the lips may manifest itself in a subjectively significant increase in the possibility of hearing the conversations in the immediate vicinity. It is only the thesis of the author and cannot be regarded as measurably proven theorem.

<sup>12</sup> The graphs confirm that the hearing performance deteriorates with age.

In case of deaf people, it also manifests itself through negative correlation of possibilities<sup>13</sup> and skills<sup>14</sup>.

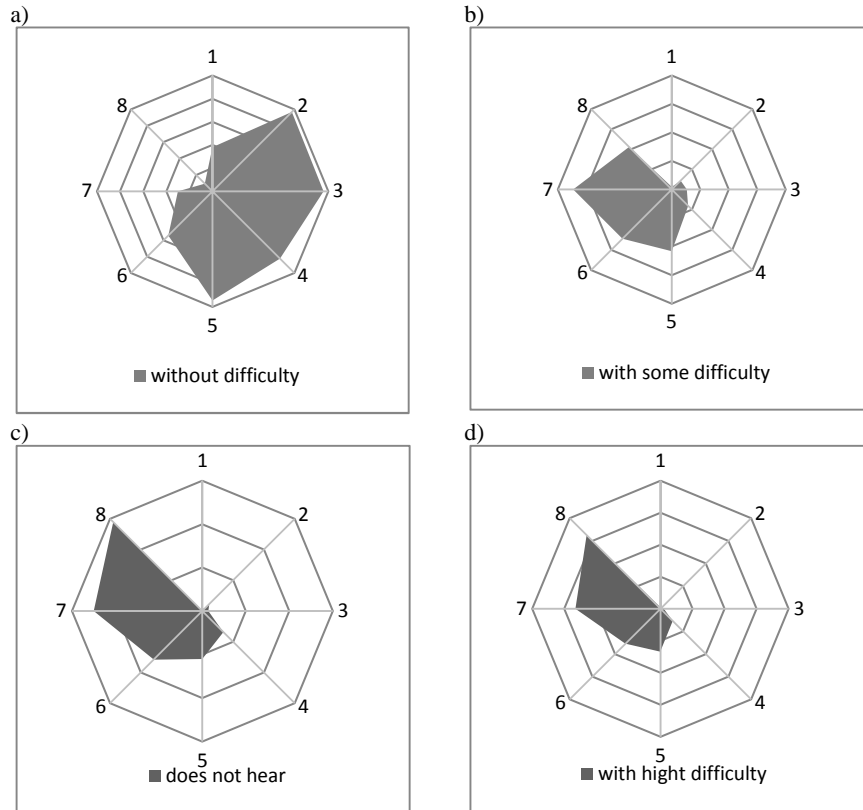


Figure 4. Qualitative analysis of data on the efficiency of the hearing, depending on the age of the respondents

Source: Own elaboration of the Author.

Particularly important for the development of social skills of deaf people are: the optimal treatment<sup>15</sup> and appropriate, adapted to the cognitive possibilities education.

<sup>13</sup> Due to the deteriorating physical dexterity it is more and more difficult for older deaf people to actively use the sign language and fully participate in this form of social life in the environment. There are also troubles with the use of modern equipment, such as computer, phone etc.

<sup>14</sup> Deaf people, especially those who have never heard, have trouble with reading and writing long sentences. With age, the problem may be exacerbated. It results also from the fact that the educational activities in which such persons have participated during their childhood and adolescence, often do not bring the intended effects.

<sup>15</sup> Particular attention should be paid to the hearing organ prosthesis with, for example cochlear implants. Com. *Consensus on the treatment of hearing loss using implants anchored in the bone*, source: [http://www.otolaryngologia.org.pl/orl2/pdf/konsensus\\_leczenie\\_niedosluchow\\_implanty\\_zakotwiczone.pdf](http://www.otolaryngologia.org.pl/orl2/pdf/konsensus_leczenie_niedosluchow_implanty_zakotwiczone.pdf) (access: 12.12.2014).

The need to view things from the perspective of children and young people is extremely important given that it is then when the deaf people are most actively involved in the processes of teaching and their social future depends largely on the quality of these processes<sup>16</sup>.

Table 3. Number of children with hearing disability – sectional summary

Specification:	Girls	Boys	In total	0-4 years old	5-9 years old	10-14 years old
The number of children with serious trouble and hardship associated with hearing (in thousand)	22,9	46,2	69,1	12,9	37,9	18,4

Source: Own elaboration of the Author<sup>17</sup>.

## 2. OUTLINE OF THE LEGAL SITUATION

The Act of November 22, 2013 on emergency notification system<sup>18</sup> defines the emergency notification as information on the occurrence or suspicion of a sudden threat to life or health, including an act of violence, as well as the sudden threat to the environment or property and threats to public safety and order, directed to the numbers supported by the emergency notification system, by the provider of publicly available telephone services, from external monitoring systems or with the use of means of communication that allow the immediate transfer of this information to the emergency center. The phrase: directed to the numbers supported by the emergency notification system<sup>19</sup>, by the provider of publicly available telephone services invariably suggests that the main way of transmitting such information by persons who have found themselves in the face of threat to life, health, the environment or property will be a phone call. Such an assumption is simple and fits well with the interpersonal possibilities of vast majority of people.

However, there is a part of the population, which as a result of this assumption, without its own share, is excluded from the total authorized to report to the state the information about the need for help and the use of some of the safety and security services<sup>20</sup>. These are deaf and deaf-mute people for whom verbal communication with the phone is indeed difficult, and in most cases even unavailable. Even people who have direct contact with the caller are able to articulate their issues and read from the lip movements the speech of interlocutor, in combination with the phone they become powerless: they can talk without knowing whether they are listened to and understood, and not hearing what someone is trying to say to them.

<sup>16</sup> Com. T. Piekot, *Report on focused research - professional identity of the deaf and their problems in the labor market*, Project co-financed by EU within EFS, proj. no. WND-PKOL.06.02.00-02-109/11, source: [http://www.glusiwpracy.dobrekadry.pl/dokumenty/Opracowanie\\_jakosciowe.pdf](http://www.glusiwpracy.dobrekadry.pl/dokumenty/Opracowanie_jakosciowe.pdf) (access: 15.12.2014 r.)

<sup>17</sup> Com. *ibidem*, p. 152.

<sup>18</sup> See Journal of Laws of 2013 item 1635, art. 2 point 1).

<sup>19</sup> Emergency Notification System in polish: System Powiadamiania Ratunkowego (SPR).

<sup>20</sup> As services concerning the provision of security the author perceives in the first place the provisions of emergency medical services (PRM), fire protection (PSP), ensuring public safety (Police).

From the point of view of society, a citizen, his duties, but also its rights, it is a kind of social exclusion, understood as lack or limitation of opportunities to participate, influence and use of basic public institutions and markets, which should be available to everyone, especially for the poor<sup>21</sup>. Here there is no question of the intended action of anyone, operations which would intend to cause such a situation. However, the very specific nature of the peculiar "award", a kind of alienation of a deaf person from the world around her results in the fact that without adequate support, that person herself will not benefit from some of their rights, facilities and services.

Countries – parties to the adopted<sup>22</sup> by the United Nations (UN) on December 13, 2006 Convention on the Rights of Persons with Disabilities<sup>23</sup> in art. 4 par. 1 let (f) undertake to: "undertake or promote research and manufacture and ensure the availability and use of goods, services, equipment and facilities universally designed, as defined in Art. 2 of the Convention, which should require the smallest possible adjustments and incur the least cost to meet the special needs of people with disabilities; and also undertake to promote the principles of universal design when establishing standards and guidelines".

The above mentioned "»universal designing« means the designing of products, environment, programs and services in such a way as to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. »Universal design« does not exclude assistive devices for particular groups of persons with disabilities, if needed"<sup>24</sup>. This means that the described in the Act of November 22, 2013 on Emergency notification system<sup>25</sup> tools and procedures for reporting incidents and threats to the safety of people, property, the environment, etc. should be planned and implemented so as to give the possibility of using also to the deaf. This is especially strongly emphasized in the Act of August 19, 2011 on the sign language and other means of communication<sup>26</sup>, which in art. 4 par. 1. states that: "An entitled person [deaf, deaf-blind – note of the Author] has the right to the free use of the chosen forms of communication".

The legislature is consistent here and later, in art. 9 par. 1. states that: "The public administration authority is obliged to provide a service allowing for communication". The statement is clear – the authority is required. This means that in the emergency notification system it is necessary to create such a channel that allows certain, immediate, real-time effective contact of deaf person with entities appointed to provide assistance.

The specificity of the emergency notification requires that the person making the notification on the need for emergency action, in addition to the description of the event or occurring risk, also informs about the place where the help is needed. Having regard to the peculiarity of the situation, the emotions and the accompanying stress, it must be assumed that the circumstances are not conducive to communication. In the event of notification by

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<sup>21</sup> Definition taken from the *National Social Inclusion Strategy for Poland*, p. 21, source: <http://www.mpips.gov.pl/gfx/mpips/userfiles/File/mps/NSIS.pdf> (access: 1.12.2014).

<sup>22</sup> Contents of the document *Convention on the Rights of Persons with Disabilities* is available on the website: <http://www.niepelnosprawni.gov.pl/dokumenty-miedzynarodowe-/dokumenty-organizacji-narodow-zj/konwencja-o-prawach/>, (available: 3.12.2014).

<sup>23</sup> The Convention on the Rights of Persons with Disabilities has been ratified by the President on September 6, 2012 under the Act of June 15, 2012 on the ratification of the Convention on the Rights of Persons with Disabilities (Journal of Laws, item 882).

<sup>24</sup> Com. Convention on the Rights (...), quoted art. 2.

<sup>25</sup> Journal of Laws of 2013, item 1635.

<sup>26</sup> Journal of Laws of 2011, No. 209. item 1243.



a deaf person, the intensity of stressors described above will be even bigger and the quality of the message can be thus significantly devalued. In order to avoid such a situation, in the Act of July 16, 2004 Telecommunications Law<sup>27</sup>, art. 78 sets out the principles on which telecom operators provide in real-time<sup>28</sup> the data on the geographical location<sup>29</sup> of the device of end user of<sup>30</sup> publicly available telecommunications services.

Unfortunately, the above described principles of cooperation of entities introduce an agency element to it<sup>31</sup> in form of the President of UKE<sup>32</sup>. It does not improve the dynamics of the actions taken and is not intended in any way to improve the efficiency and accuracy of the positioning of persons calling and sending short messages to emergency call centers in different provinces.

### 3. CONCLUSION

In this article, the author attempts to show the legal environment, the size and characteristics of the deaf community as an area from which the emergency notification system can and should obtain emergency calls.

One may get the impression that the Polish state is between, on the one hand, the requirements arising from ratified international instruments and regulations adopted to organize the Polish law in this area, and on the other the difficulties that generate further attempts to fulfill the obligations imposed on them by the described legal acts.

The latter can be divided into several groups: organizational problems, technical difficulties and financial shortcomings. Each of these groups requires the right attitude and proper idea.

Since Poland's accession to the European Union, and especially since 2011, emergency call service in Poland is evolving in the direction of reducing the number of emergency numbers, to which such calls can be addressed and tends to direct all emergency and service calls within a reasonable timeframe to general European emergency number 112<sup>33</sup>.

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<sup>27</sup> Journal of Laws of 2004, No. 171. item 1800, as amended.

<sup>28</sup> Com. *ibidem*, art. 78 par. 1. point 2).

<sup>29</sup> Com. *ibidem*, art. 78 par. 3. point 2).

<sup>30</sup> The term "end user device" is to be understood as both a mobile phone, as well as all kinds of ICT equipment, which in their activities use the data sent over cellular networks.

<sup>31</sup> Public telecommunications network operator is obliged to provide the President of UKE with free information on the location of the network termination, from which an emergency call was made. See *ibidem*, art. 78 par. 1.

<sup>32</sup> President of UKE – President of the Office of Electronic Communications – is the regulatory body in the scope of telecommunication and postal activity, frequency resources management and control of compliance with the requirements relating to electromagnetic compatibility. It is also a specialized body for the control of devices emitting or liable to emit electromagnetic fields, including telecommunication equipment and devices introduced on the market in Poland. Com. <http://www.uke.gov.pl/urzad-805> (access: 15.12.2014)

<sup>33</sup> Although the Act on the emergency notification system in art. 3 states that emergency calls can also be directed to domain numbers (999 – Emergency medical services, 998 – State Fire Service and 997 – Police) and service numbers of commercial entities that choose to sign an appropriate agreement with the governors (991, 992, 993, 994 and 987 and others), the in the art. 29 par. 1 point 3) it clearly defines the conditions under which the service of domain emergency numbers will be taken over by CPR. At the same time, the promotion of the general European emergency number 112 is evident.

Financial issues are critical in the implementation of the project, which is building the emergency notification system in Poland. The formula assumes that the SPR is built on a centralized manner, managed by the minister responsible for public administration<sup>34</sup>, and public-safety answering point (PSAP)<sup>35</sup> in the field are formed by proper heads of provinces.

Technical and technological issues of the implemented concept relate to a wide range of associated fields. The basis is the available, simple and reliable telephone communication with emergency center. This way the majority of emergency calls will be directed from people in the face of danger. Another element is the efficient, accurate and effective PSAP ICT infrastructure. Its task will be to provide the operator of emergency numbers<sup>36</sup> as much data, as soon as possible<sup>37</sup> needed to take proper rescue or service action. Another requirement is adequate communication between the described above PSAP infrastructure and field systems of particular authorities and commercial services. Another important issue is the secure, fast and efficient network for teletransmission that will be used to exchange information.

An important element ordering the organizational space of service of emergency numbers is the Act of November 22, 2014 on emergency notification system. Its contents includes fundamental definitions, the outline of the structure and the entities responsible and scope of their responsibility. Not without significance are also the threshold dates that determine the deadlines of implementation of the next steps of the emergency notification system construction in Poland.

From the point of view of the environment of the hearing-impaired individuals, of particular importance is art. 20 par. 1 point 2) let. b), which states that<sup>38</sup>: "The provider of publicly available telephone services provides the direction of short text messages (SMS) to the emergency numbers 112, 997, 998 and 999 to the locally competent emergency center and connection to other emergency numbers to the locally competent units of services legally established to provide help".

Unfortunately, the act has little to do with the reality. The Act of November 22, 2013 on emergency notification system in force since January 1, 2014, but the above cited provision, so far, still functions only in writing...

Until the completion of writing of this article, the author could not obtain from the Ministry of Administration and Digitization any declarations as to the date of implementation of this functionality in the ICT system supporting emergency numbers operators in CPR. This means that by the time of start of the service, receiving emergency notifications in SPR by means of SMS channel, one can have recourse in this respect with the properly elaborated SMS gateways and procedures, which, though temporarily, do pose such a possibility.

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<sup>34</sup> Com. Act on the emergency notification system, quoted art. 4.

<sup>35</sup> PSAP in polish: Centrum Powiadamiania Ratunkowego (CPR).

<sup>36</sup> Operator of Emergency Numbers in polish: Operator Numerów Alarmowych (ONA).

<sup>37</sup> This is primarily about the specification of the location from where the emergency calls are forwarded. Such functionality of the emergency notification system allows to avoid misunderstandings and ambiguities that may arise as a result of lack of knowledge of the place of the incident by the person who reported the incident (e.g. the accident, which happened at night, in the middle of the forest, on the road or in the area which the person reporting does not know and does not recognize).

<sup>38</sup> Com. Act on the emergency notification system, quoted art. 20.

This is important not only for the deaf. Thanks to its advantages, this form of reporting the need for help from the relevant services can be used in situations involving e.g. domestic violence, kidnapping, imprisonment or terrorist attack.

## REFERENCES

### Books and articles

1. Grocki R., *Osoby niepełnosprawne w sytuacji zagrożenia*, DIFFIN, Warsaw 2014.

### LEGAL ACTS

2. Act of November 23, 2013 on emergency notification system (Journal of Laws of 2013 item 1635).
3. Act of August 11, 2011 about sign language and other means of communication (Journal of Laws of 2011 No. 209 item 1243).
4. Act of July 16, 2004 Telecommunication Law (Journal of Laws of 2004 no. 171 item 1800, as amended).
5. Act of August 24, 1991 on fire protection (Journal of Laws no. 191, item 1410, as amended).
6. Act of September 6, 2006 on State Emergency Medical Services (Journal of Laws of 2006 no. 191 item 1410, as amended).
7. Act of January 23, 2009 about head of province and government administration in the province (Journal of Laws of 2009 no. 31 item 206, as amended).
8. Act of June 15, 2012 on the ratification of the Convention on the Rights of Persons with Disabilities, (Journal of Laws item 882).
9. Directive 2002/22/EC of the European Parliament and of the Council of March 7, 2002 on universal service and users' rights related to networks and electronic communications services (Universal Service Directive) (OF EU L of April 24, 2002).

### INTERNET SOURCE

1. *Convention on the Rights of Persons with Disabilities*, source: <http://www.niepelnosprawni.gov.pl/dokumenty-miedzynarodowe-/dokumenty-organizacji-narodow-zj/konwencja-o-prawach/> (access 3.12.2015)
2. *National Strategy for Social Integration for Poland*, source: <http://www.mpips.gov.pl/gfx/mpips/userfiles/File/mps/NSIS.pdf> (access: 1.12.2015).
3. Piekot T., *Report on focused research – professional identity of the deaf and their problems in the labor market*, Project co-financed by EU within EFS, proj. no. WND-PKOL.06.02.00-02-109/11, source: [http://www.glusiwpracy.dobrekadry.pl/dokumenty/Opracowanie\\_jakosciowe.pdf](http://www.glusiwpracy.dobrekadry.pl/dokumenty/Opracowanie_jakosciowe.pdf) (access: 15.12.2015 r.)
4. *Guidance on the implementation of support for the socially excluded and disadvantaged* under the Operational Programme Human Capital Department of ESF Management at the Ministry of RD, Warsaw, October 2009, source: [http://www.efs.gov.pl/dzialaniapromocyjne/Documents/Poradnik\\_dot\\_realizacji\\_wsparcia\\_dla\\_os\\_wykluczonych\\_spol\\_POKL\\_091009.pdf](http://www.efs.gov.pl/dzialaniapromocyjne/Documents/Poradnik_dot_realizacji_wsparcia_dla_os_wykluczonych_spol_POKL_091009.pdf) (access: 05.12.2015)
5. *Report on the disabled in Poland*, Biuro Prasowe Kongresu Kobiet, Warsaw, 06.06.2011, source [http://samorzad.pap.pl/palio/html.run?\\_Instance=samorząd\\_nowy.pap.pl&\\_PageID=6&\\_media\\_id=57272&\\_filename=KK\\_2011\\_06.06\\_raport\\_o\\_niepelnosprawnych.pdf&\\_mimetype=application/pdf&\\_Checksum=780010585](http://samorzad.pap.pl/palio/html.run?_Instance=samorząd_nowy.pap.pl&_PageID=6&_media_id=57272&_filename=KK_2011_06.06_raport_o_niepelnosprawnych.pdf&_mimetype=application/pdf&_Checksum=780010585) (access: 3.12.2015).

6. *Report of the Central Statistical Office on the Polish population health status in 2009*, source: [http://old.stat.gov.pl/cps/rde/xbcr/gus/ZO\\_stan\\_zdrowia\\_2009.pdf](http://old.stat.gov.pl/cps/rde/xbcr/gus/ZO_stan_zdrowia_2009.pdf), s. 265 (access: 3.12.2015).
7. *Consensus on the treatment of hearing loss using implants anchored in the bone*, source: [http://www.otolaryngologia.org.pl/orl2/pdf/konsensus\\_leczenie\\_niedosluchow\\_implanty\\_zakotwiczone.pdf](http://www.otolaryngologia.org.pl/orl2/pdf/konsensus_leczenie_niedosluchow_implanty_zakotwiczone.pdf) (access: 12.12.2015).
8. <http://www.niepelnospawni.gov.pl/niepelnospawnosc-w-liczbach-/dane-demograficzne/informacje-i-dane-demograficzne/> (access: 3.12.2015).
9. <http://pedagogikaspecjalna.tripod.com/notes/deafness.html#1> (access: 1.12.2015).
10. *Report* published on: [http://old.stat.gov.pl/cps/rde/xbcr/gus/ZO\\_stan\\_zdrowia\\_2009.pdf](http://old.stat.gov.pl/cps/rde/xbcr/gus/ZO_stan_zdrowia_2009.pdf), p. 74 (access: 3.12.2015).
11. <http://www.uke.gov.pl/urząd-805> (access: 15.12.2014)

### **DOŚWIADCZENIA Z WYKORZYSTANIA SYSTEMU POWIADAMIANIA RATUNKOWEGO DLA OSÓB ZAGROŻONYCH WYKLUCZENIEM SPOŁECZNYM NA PRZYKŁADZIE OSÓB NIEŚLYSZĄCYCH W POLSCE**

Wdrażany w Polsce od roku 2011 system powiadamiania ratunkowego oparty jest przede wszystkim na bezpośrednim, telefonicznym, werbalnym kontakcie pomiędzy osobą dokonującą zgłoszenia a operatorem numeru alarmowego w Centrum Powiadamiania Ratunkowego (CPR), oficerem dyżurnym w komendzie powiatowej Policji albo komendzie powiatowej Państwowej Straży Pożarnej, lub dyspozytorem ratownictwa medycznego. To sprawia, że przy takich założeniach staje się on niedostępny dla osób niesłyszących. Takie osoby nie mogą nawiązać kontaktu werbalnego z operatorem numeru alarmowego. Nawet, jeśli w codziennym życiu potrafią wypowiadać słowa i porozumiewać się z bezpośrednim rozmówcą dzięki umiejętności czytania z ruchu jego warg, to poprzez niemożność słyszenia kontakt telefoniczny staje się niemożliwy. Osoba niesłysząca może nawiązać kontakt i wymieniać informacje albo za pośrednictwem wzroku i komunikacji w języku migowym, albo za pomocą przekazu pisanego. Wobec powszechnego użycia, także w środowisku osób niesłyszących telefonów komórkowych pojawia się możliwość wykorzystywania do wysyłania zgłoszeń alarmowych krótkich wiadomości tekstowych, tzw. esemesów<sup>39</sup>. Autor w niniejszym artykule przedstawia swoje doświadczenia i wynikające z nich przemyślenia dotyczące powiadamiania ratunkowego i możliwości wykorzystania jego funkcjonalności przez osoby niepełnosprawne słuchowo. Doświadczenia były zbierane przy okazji aktywnego udziału autora w działaniach związanych z tworzeniem systemu powiadamiania ratunkowego na terenie województwa podkarpackiego oraz wdrażaniem w roku 2014 przez Centrum Powiadamiania Ratunkowego w Rzeszowie bramki SMS przeznaczonej do odbierania zgłoszeń alarmowych od osób niesłyszących z terenu województwa podkarpackiego.

**Słowa kluczowe:** CPR, SMS, system powiadamiania ratunkowego, SPR, głuchota.

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<sup>39</sup> Ang. SMS – short message service.

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## DILEMMAS OF THE CREATION OF INNOVATION POLICY IN MEMBER STATES

Directions of changes occurring in the world economy in recent years show the transformation of the industrial economy into a knowledge-based economy, using the technological and innovative potential. This transformation has highlighted the competitive advantages of countries and regions specializing in the production of hightech products. A lot of research has been trying to find out what the drivers of innovation really are, though there has not formed one consensus. The aim of the paper is to investigate influence of research and development (R&D) expenditure on economic growth in EU member states and to assess whether there is a significant relationship between countries' R&D efforts and their innovation and between innovation and per capita income, as postulated by R&D based endogenous growth models. Basic source of data is Eurostat database and European Innovation Scoreboard reports. Results confirm positive and statistically significant impact of government R&D expenditure, which is the main driver for economic growth during the analysed period. Highly developed countries are conducting research to seek new sources of innovativeness and methods for creating innovative potential. The results also suggest that the EU countries that do not have effective R&D sectors seem to promote their innovation through technology spillovers from other countries.

**Keywords:** innovation, innovation policy, economic growth.

### 1. INTRODUCTION

Implementation of the innovation policy at national level requires the settlement of many dilemmas. They are connected with, among other things, what instruments and on what scale should be used. State interventionism may interfere with the functioning of free market, and consequently lead to deterioration in the condition of the bodies, which did not use the aid. The biggest controversies result primarily from grants financed from public funds, also coming from the budget of the European Union. However, most experts believe

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that in the area of innovative actions, which entail high risk, such aid is indispensable. Creating the right innovation policy requires continuous evaluation of the innovativeness of economy and the evaluation of executed programmes and used instruments, so that it is possible to modify this policy as needed.

The available data indicates that the innovation policy of many Member states, especially the so-called new Member states, does not allow to reduce the distance to the leaders. There are many factors that determine the innovativeness of economy, and the impact of some of them is not well understood through research and described. That is why sustainable development of knowledge on the mechanisms of the formation of innovation and ways to stimulate innovativeness is a prerequisite for the proper planning of public interventions. Changes in the area of public management and the emergence of an approach known as New Public Management make the public sector more and more opened for the use of management methods and techniques employed in the private sector. This model is focused on results and is to ensure cost efficiency, efficiency and effectiveness of public organisations<sup>3</sup>. Therefore, we must verify whether the employed instruments, especially of a financial nature, have been properly used to stimulate the innovativeness of economy.

The aim of the paper is to evaluate the importance of investing in R&D for the level of innovativeness of the Member states and to identify regularities that occur in this respect. In addition, the authors attempted to indicate the necessary directions for the development of innovativeness policy, which could allow the catching-up Member states to get a better pace of innovativeness development. For the purposes of the paper, available data of the European Statistical Office was used along with the information from the European Innovation Scoreboard report.

## 2. THE CONCEPT AND THE ESSENCE OF THE INNOVATIVENESS

Innovativeness is an economic category, which can be viewed and defined on three different levels, namely at the level of enterprise, region and state (economy).

Colloquial understanding of innovativeness means something new and different from existing solutions, is associated with the need of change for the better and is very often used as a synonym for the word "change"<sup>4</sup>.

Innovativeness is usually treated as a feature of economic entities or economies, i.e. their ability to create and absorb innovation and is associated with the active engagement in innovative processes and taking appropriate actions. It can also be identified with involvement in gaining resources and skills necessary to participate in these processes<sup>5</sup>. Innovativeness of the economy is ability and willingness of economic entities to continually search for and use in practice the results of research and of research and development works, new concepts, ideas and inventions, improvement and development of the used technology of production of tangible and intangible (services) goods, implementation of new methods and techniques in the organisation and management, improvement and development of the

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<sup>3</sup> A. Zalewski, *Reformy sektora publicznego w duchu nowego zarządzania publicznego* [in:] *Nowe zarządzanie publiczne w polskim samorządzie terytorialnym*, ed. A. Zalewski, Warszawa 2007, p. 29.

<sup>4</sup> W. Janasz, K. Kozioł, *Determinanty działalności innowacyjnej przedsiębiorstw*, Warszawa 2007, p. 11.

<sup>5</sup> K.B. Matusiak (ed.), *Innowacje i transfer technologii. Słownik pojęć*, Warszawa 2011, p. 74.

infrastructure and knowledge<sup>6</sup>, as well as the improvement of the methods of processing, collecting and sharing information<sup>7</sup>.

The above definitions of innovativeness seem clear and legible, but the problem is to measure and evaluate its level. It is beyond doubt that the higher innovativeness means greater willingness and ability of the economies and enterprises to develop innovation. However, it should be noted that definitions of innovativeness are pretty general and only cover two areas. On the one hand, they refer to broadly understood potential for creation of innovation and continuous commitment to its development (i.e. they refer to the so-called potential innovation). On the other hand, based on the approach proposed by J. Schumpeter, they indicate that we deal with innovations only when they are implemented in practice. Therefore, innovativeness must also apply to the context of the specific effects of the conducted innovative activity (it is the so-called resultative or resulting innovativeness)<sup>8</sup>. The distinction between these dimensions of innovativeness is very important, because a high innovative potential does not necessarily mean numerous implementations in the economy and translate into very good results of innovative activities carried out by enterprises. On the other hand, implementation of innovative solutions in enterprises using imported technology does not have to be a result of a high potential innovation of the economy. This can be a significant problem when attempting to assess innovativeness, especially that according to the Oslo Manual, enterprises can implement innovation with different levels of newness. It highlights innovations which are new to companies, new to the market and new to the world (i.e. breaking innovations)<sup>9</sup>. Transfer of technology in a given country can lead to numerous implementations of the same solution by different entities, which can raise e.g. the percentage of innovative enterprises, and thus affect the assessment of the level of innovativeness of the whole economy. Therefore, we are constantly looking for methodological solutions, which would allow the most objective evaluation of innovativeness. Described methodological difficulties do not affect the conviction that innovativeness is the best way to ensure the competitiveness of the economy and ensure its growth opportunities, which is confirmed by numerous studies carried out in this field.

### 3. INNOVATIVENESS AS A DETERMINANT OF ECONOMIC GROWTH IN SCIENTIFIC RESEARCH

The precursor of theory of innovation in economics is J.A. Schumpeter. According to him, innovativeness can be identified with an action which is characterised by intellectual creativity. It is important, however, that when defining innovation, Schumpeter distinguished it from the invention, noting that innovation is possible without invention, since the invention does not necessarily induce innovation, as it is not necessarily always introduced on the market<sup>10</sup>.

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<sup>6</sup> P. Frankowski, B. Skubiak, *Innowacyjność w teorii ekonomii i praktyce gospodarczej*, Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania 2012, nr 30, p. 274.

<sup>7</sup> J. Kowalik, *Analiza poziomu innowacyjności państw Unii Europejskiej*, Zeszyty Naukowe Politechniki Częstochowskiej Zarządzanie 2015, nr 19, p. 22.

<sup>8</sup> T. Nawrocki, *Innowacyjność produktowa przedsiębiorstw*, Warszawa 2012, p. 22–23.

<sup>9</sup> OECD, Oslo Manual. *Guidelines for Collecting and Interpreting Innovation Data*, 3rd Edition, The Organisation for Economic Co-operation and Development. 2005, p. 20.

<sup>10</sup> J.A. Schumpeter, *Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process*, Philadelphia 1982, p. 85.

Innovation in the context of management was also dealt with by, among others, P.F. Drucker, who focused on the sources of innovation<sup>11</sup> and M.E. Porter, who believed that innovation may be the most important determinant of competitive advantage of economies<sup>12</sup>. In Polish literature, much attention to innovation was devoted by A. Pomykalski, who indicated the relationships existing between the economic and innovative processes in the entire economy and enterprise<sup>13</sup> or M. Weresa, who focused on the functioning of innovation systems and the implementation of innovation policy<sup>14</sup>.

Studies of technological innovations were popularised by C. Freeman in the seventies of the twentieth century. He saw the growing role of R&D activities. He stressed that innovation is a prerequisite for economic development and a key element in the competitive struggle between enterprises and states, but also improves the quality of life of citizens and secure the potential of modern societies<sup>15</sup>.

Research conducted by G. Cameron confirms that the expenditures on research, development and innovation positively affect the economic development<sup>16</sup>, acceleration of which is most often the result of growth in productivity dynamics<sup>17</sup>. This is particularly important for the economies operating under heavy resource constraints.

The research conducted points to differences in the level of economic development of individual states, depending on the severity of their technological and innovative potential. One of the first research was carried out by J. Fagerberg, who used data from 25 states to verify the hypothesis that the level of technological development of the country has a significant impact on its economic growth. He proved that countries with low GDP per capita can, using only import or imitation in the field of technology, obtain external benefits from faster technological development of other (richer) states. This can lead to surprising dependence, which Fagerberg described as the "catching-up effect"<sup>18</sup>.

States, depending on their level of innovativeness, can be divided into several major categories, which differ in terms of potential of development directions. First of them is the most developed economies with high level of innovativeness. In their case, transfer of solutions from other countries is not possible, so they must incur expenditures on R&D. In the absence of the possibility to pattern on others, they develop their own solutions. Second of them is states that are rapidly growing, mainly due to imitation and import of technology, which with low labour costs enable rapid GDP growth. However, at some level of GDP (several thousand dollars per capita), the import of advanced solutions becomes uneconomical and it is necessary to focus on the development of own innovations. Otherwise, such a state can fall into the so-called middle income trap<sup>19</sup>. Third category is states with such

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<sup>11</sup> P.F. Drucker, *Innowacja i przedsiębiorczość. Praktyka i zasady*, Warszawa 1992, p. 44.

<sup>12</sup> M.E. Porter, *The Competitive Advantage of Nations*, London 1990, p. 73.

<sup>13</sup> A. Pomykalski, *Zarządzanie innowacjami*, Warszawa–Łódź 2001.

<sup>14</sup> M. Weresa, *Polityka innowacyjna*, Warszawa 2014.

<sup>15</sup> C. Freeman, L. Soete, *The Economics of Industrial Innovation*. 3rd Edition, London 1997.

<sup>16</sup> G. Cameron, *Innovation and Economic Growth*, CEP Discussion Papers No. 277, Centre for Economic Performance, London School of Economics and Political Science, London 1996, p. 10.

<sup>17</sup> M. Khan, K.B. Luintel, *Sources of Knowledge and Productivity: How Robust is the Relationship?*, OECD Science, Technology and Industry Working Papers 2006, nr 6, OECD, Paris 2006.

<sup>18</sup> J. Fagerberg, *Technology Gap Approach to Why Growth Paths Differ*, „Research Policy“ 1987, Vol. 16, p. 87–89.

<sup>19</sup> M. Bukowski, A. Szprot, A. Śniegocki, *Innowacyjność polskiej gospodarki*, „Ekonomia i Zarządzanie” 2014, nr 1, p. 6.



a low income so that it is not possible for them to import advanced solutions. Then they have no prospects for development.

The study of H. Ulku confirmed a strong positive relationship between innovativeness and GDP per capita in OECD countries and outside the OECD. It also turned out that the highly developed OECD countries are able to increase their innovativeness by investing in research and development, while other countries, who do not have a developed R&D, focus on innovations resulting from the transfer of technology from other countries<sup>20</sup>.

Also, the study aimed to identify the relationships between economic growth and innovativeness in the states of Central and Eastern Europe confirmed the existence of a positive correlation between economic growth and innovations. Additional factors that may affect the growth were direct foreign investments (through the transfer of knowledge and improvement of technological processes) and education and human capital, which also confirms the truthfulness of the concept of endogenous growth<sup>21</sup>.

#### 4. INVESTMENTS IN THE R&D SECTOR AS AN INSTRUMENT OF INNOVATION POLICY

As previously mentioned, the thesis that the development of economy based on innovativeness can contribute to its growth has been confirmed in numerous studies. However, there is a problem that needs to be solved by the government of each state – it is to prepare and implement innovation policy adequate to its specifics.

Innovation policy includes different kinds of government programmes, tools, instruments, mechanisms and measures, whose aim is for the state to directly or indirectly influence the level of innovation of individual entities and sectors, and to influence the development of innovative economic structure. The main objective of the innovation policy is to ensure the efficiency of national and regional innovation systems<sup>22</sup>.

Simple ways to assess the disbursement of funds do not provide sufficient information on the effectiveness and efficiency of expenditure within innovation policy. The correlation of the amount of expenditures incurred by the Member states on R&D (Total intramural R&D expenditure GERD) expressed in millions of euros and the number of applications in the period 2007-2014 is characterised by a high Pearson correlation coefficient, which is 0.95<sup>23</sup>. However, as previously mentioned, it is difficult to evaluate innovativeness only by the number of patent applications. The European Commission, for the needs of evaluation of the innovation policy of the states and regions of the European Union uses the European Innovation Scoreboard. A new methodology was introduced in 2017, which is designed to enable more accurate assessment of innovativeness. This year's report also contains calculations, allowing the determination of the synthetic innovativeness indicators (Summary Innovation Index) for individual States for the years 2010-2016. Their analysis indicates

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<sup>20</sup> H. Ulku, *R&D, Innovation, and Economic Growth: An Empirical Analysis*, „IMF Working Paper“ 2004, No. 185, p. 27.

<sup>21</sup> A.M. Pece, O.E. Simonab, F. Salisteanuc, *Innovation and economic growth: An empirical analysis for CEE countries*. „Procedia Economics and Finance“ 2015, No. 26, p. 466–467.

<sup>22</sup> E. Okoń-Horodyńska, *Co z narodowym systemem innowacji w Polsce?* [in:] *Rola polskiej nauki we wzroście innowacyjności gospodarki*, ed. E. Okoń-Horodyńska, Warszawa 2004.

<sup>23</sup> D. Wyrwa, *Evaluation of the efficiency of the European Union's innovative policy*, „Actual Problems of Economics“ 2017, No. 1, p. 22.

that during this period the most innovative EU countries were Sweden, Denmark, Finland, Luxembourg and Germany. In turn, the least innovative ones included Romania, Bulgaria, Poland, Latvia and Croatia.

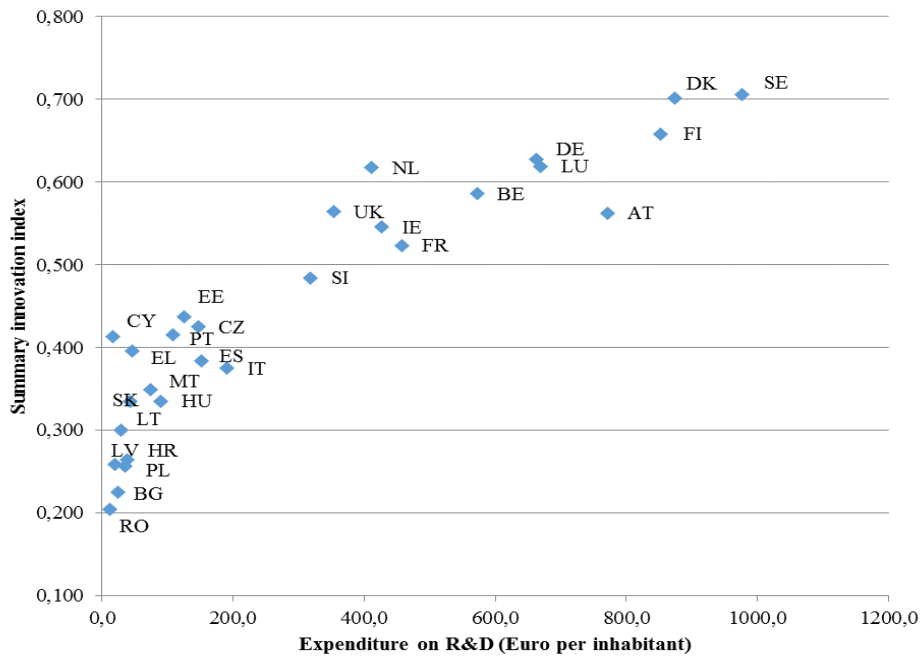


Figure 1. Relationship between expenditure on R&D and the innovativeness index (SII)

Source: own elaboration based on Eurostat data and European Innovation Scoreboard 2017.

Summary Innovation Index for the individual Member states are compiled with the data on expenditure incurred by them on R&D activities. Figure 1 shows the relationship existing between expenditure and the innovativeness index (SII).

However, widespread belief that EU funding can make a significant contribution in stimulating innovativeness in the economy and increase its dynamics is not confirmed. One of the biggest beneficiaries of this aid, which is Poland, does not show significant progress in improving the innovative position compared to the EU average, and the designated trend line is unfavourable compared to the EU average. This is illustrated by Figure 2.

Compilation of the innovative position of state with total expenditure incurred on R&D clearly indicates that in the case of the leaders of the ranking, expenditures are the highest. What is important, also in terms of percentage of GDP, these states invest in R&D significantly more than the EU average. State occupying the lowest position, also in the case of expenditure on R&D are placed low. Of course, this should not be surprising if one takes into account the methodology of assessment of innovativeness used to the needs of the European Innovation Scoreboard report, as many indicators refer to R&D costs.

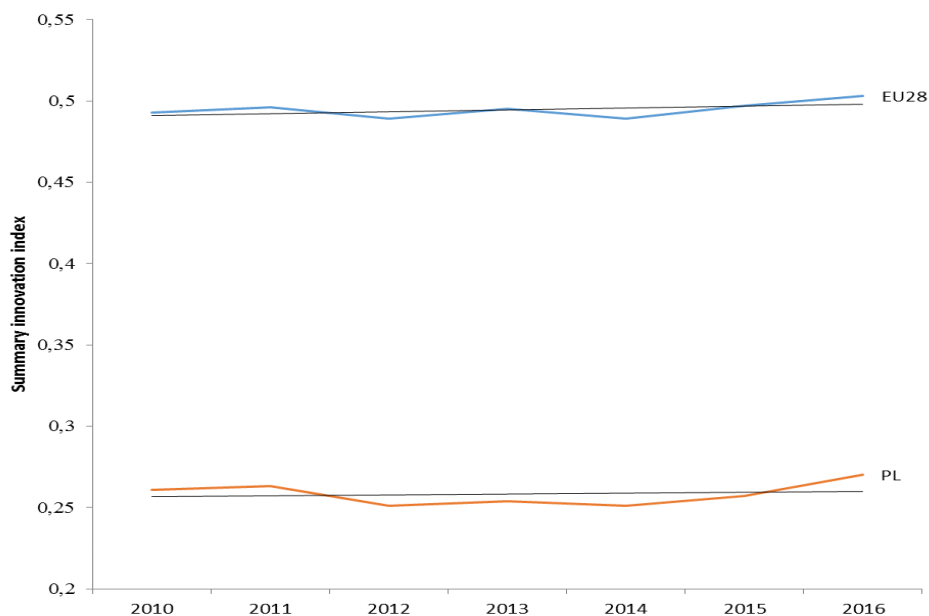


Figure 2. Summary innovation index in Poland compared to the EU average

Source: own elaboration based on European Innovation Scoreboard 2017.

Data analysis also indicates that in the case of the most innovative states, the private sector dominates in investments in R&D activities. In the case of Denmark in the analysed period it was on average nearly 29 times greater than in the case of the public sector, and in Sweden nearly 17 times greater, in Finland nearly 8 times greater. Participation of the private sector was slightly lower in Germany, where its expenses were more than 4 times greater than in the public sector. One exception is Luxembourg, which shows lowering of the share of the private sector from 3.1 in 2010 to 1.6 in 2015, compared with the public sector. On average, this gave a factor of 2.2, the same as in the case of Bulgaria where the opposite trend can be observed. In other countries occupying the lowest positions of the innovativeness ranking, private sector expenditures compared to the public sector were between 0.9 in Romania to 1.8 in Croatia. The ratio of expenditures in the private sector to the public sector has been included in Table 1.

The results seem to confirm that the European Union funds, which significantly supply the Polish economy, do not always provide sufficient source allowing for efficient stimulation of innovativeness. Therefore, it would be wise to seek for new solutions, particularly to develop incentives that would raise the share of expenditures of enterprises in terms of funding of R+D activities.

Compilation of GDP of analysed states also shows that the top performers of the innovativeness ranking are characterised by a high level of GDP per capita. This in turn allows to spend larger amounts on innovative activities. In turn, states, whose innovativeness is low, are characterised by a significant growth of GDP.

Table 1. The ratio of expenditures in the private sector to the public sector

Country	2010	2011	2012	2013	2014	2015
European Union (28 countries)	4,8	5,1	5,2	5,2	5,3	5,3
Belgium	8,0	8,5	8,7	8,7	8,7	9,3
Bulgaria	1,4	1,5	2,0	2,1	2,7	3,5
Czech Republic	2,7	2,8	2,9	3,0	3,1	2,7
Denmark	30,4	32,9	27,6	26,9	27,4	27,4
Germany	4,5	4,7	4,7	4,5	4,5	4,5
Estonia	4,8	7,8	6,2	5,3	4,0	4,3
Ireland	14,4	14,1	14,9	15,7	16,2	0,0
Greece	1,7	1,5	1,4	1,2	1,2	1,2
Spain	2,6	2,7	2,8	2,8	2,8	2,7
France	4,5	4,6	4,9	5,0	5,1	5,0
Croatia	1,6	1,6	1,7	2,0	1,8	2,1
Italy	3,9	4,1	3,7	3,9	4,2	4,2
Cyprus	0,9	0,9	0,9	1,1	1,2	1,2
Latvia	1,6	1,2	0,8	1,0	1,5	1,0
Lithuania	1,7	1,3	1,4	1,3	1,8	1,6
Luxembourg	3,1	2,8	2,0	1,8	1,8	1,6
Hungary	3,2	4,0	4,5	4,7	5,2	5,5
Malta	14,1	15,0	7,2	5,4	5,5	2,8
Netherlands	4,1	5,2	4,8	4,6	4,7	4,5
Austria	13,1	13,4	15,4	15,9	16,0	15,9
Poland	0,7	0,9	1,3	1,6	1,9	1,9
Portugal	6,4	6,4	9,3	7,3	7,4	8,0
Romania	1,0	0,9	1,0	0,6	1,0	1,1
Slovenia	3,7	5,2	5,8	5,9	6,4	5,6
Slovakia	1,4	1,3	1,7	2,3	1,3	1,0
Finland	7,5	8,0	7,6	7,7	7,8	8,2
Sweden	14,1	16,0	14,1	18,7	17,9	20,2
United Kingdom	6,4	7,4	7,9	8,1	9,0	9,7

Source: own elaboration based on Eurostat data.

Figure 3, which presents the dynamics of GDP and the level of innovativeness, allows to observe a certain regularity. It says that the most innovative states (Sweden, Finland, Denmark, Germany) are characterised by low GDP growth. On the other hand, those with low innovativeness (Bulgaria, Poland, Romania, Malta, Slovakia) can demonstrate the significant growth. This is confirmed by the fact that the development of economies of the so-called catching-up states is primarily the result of implementing solutions transferred from more developed countries. In addition, development is based on the low labour cost that characterises these countries. Labour cost of innovation leaders is among the highest in the European Union, which inhibits the dynamics of GDP. Nevertheless, high level of innovativeness allows to keep it on a positive level.

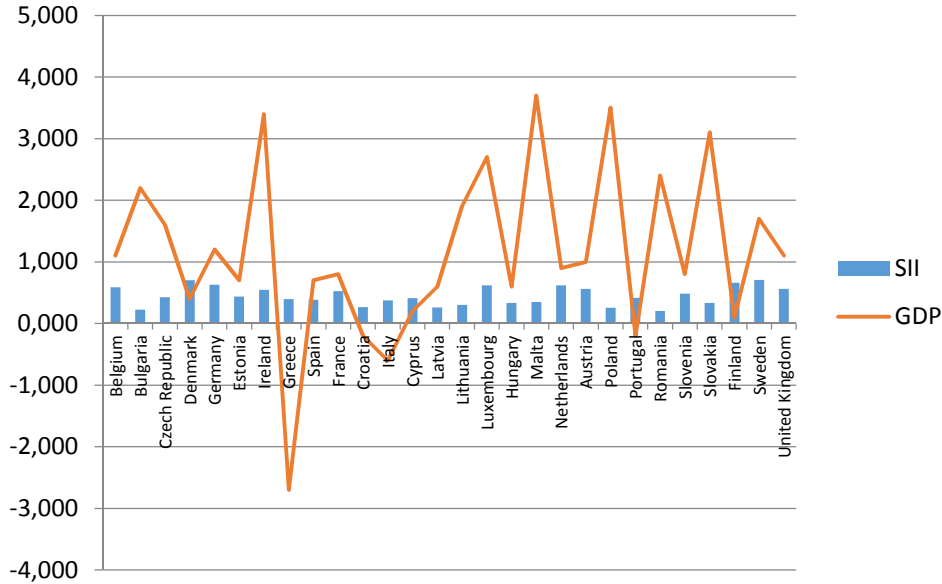


Figure 3. GDP growth and summary innovation index

Source: own elaboration based on Eurostat data and European Innovation Scoreboard 2017.

## 5. CONCLUSIONS

Analysis of the available data regarding the financing of R&D activities indicates the low interest of private enterprises in countries that occupy low positions in terms of innovativeness in the European Union. It may also be the result of smaller readiness of domestic market to accept innovation. In the case of the leaders, share of the private sector is dominant in financing of pro-innovation activities. Based on the results obtained, we can formulate a thesis that public spending is less efficient and effective than in the case of private funds. In addition, there is concern that these measures could destabilise the market and impair competition. Polish example shows that EU funds do not guarantee the appropriate pace of development allowing to achieve a trend that would guarantee getting good results in the long term and reduce the gap.

Summary of GDP dynamics and innovative position of individual countries indicates that in this case there is an inverse relationship. After considering the additional labour costs, it can be said that poor innovativeness forces us to seek opportunities to develop economy based on low costs and development of production orientation. It may be a good solution in the initial period of catching-up, but in the case of the European Union it is difficult to clearly observe the occurrence of the phenomenon of convergence, because the position and distance of individual states are rather stable.

The observed regularities seem to clearly indicate the need to search for new instruments to increase innovativeness, which is confirmed by the Polish case, who, despite a significant

share in the redistribution of EU funds, has not been able to achieve an appropriate pace of development yet. If innovations, especially ground-breaking ones, are to be the driving force of the economy, and these in turn require incurring the expenditure on R&D activities, it is necessary above all to stimulate the private sector to get it involved in its financing. For this purpose, it is not enough to use only the financial instruments in the form of grants. It may also be important to reconstruct the state's micro-economic policy through the introduction of other pro-innovative solutions.

In relation to public expenditures, it may be wise to additionally bonus innovative enterprises, especially those acting on an international scale. Public expenditures are important in creating development, however, we must remember that they are complementary to private expenditures and cannot replace them. Additionally, we must secure rational spending. Non-refundable grants are recommended in areas where there is significant risk. Where the risk is lower, and only imperfections of financial markets limit investments, we should consider the use of refundable instruments (even taking into account preferential conditions for innovators).

Additional results from the analysis of the available data indicate that the low interest of the private sector in innovation financing may be due to the fact that the market does not need them. Perhaps the right conditions for the development of innovation will be available by achieving the optimum level of GDP per capita, as higher incomes associated with it could stimulate demand for innovation. Yet, it is important to constantly employ innovation policy so that the economy is not stuck in the middle income trap.

## REFERENCES

1. Bukowski M, Szprot A., Śniegocki A., *Innowacyjność polskiej gospodarki*, „Ekonomia i Zarządzanie” 2014, nr 1.
2. Cameron G., *Innovation and Economic Growth*, CEP Discussion Papers No. 277, Centre for Economic Performance, London School of Economics and Political Science, London 1996.
3. Drucker P.F., *Innowacja i przedsiębiorczość. Praktyka i zasady*, PWE, Warszawa 1992.
4. Fagerberg J., *Technology Gap Approach to Why Growth Paths Differ*, „Research Policy” 1987, Vol. 16.
5. Frankowski P., Skubiak B., *Innowacyjność w teorii ekonomii i praktyce gospodarczej*, Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania 2012, nr 30.
6. Freeman C., Soete L., *The Economics of Industrial Innovation*. 3rd Edition, Routledge, London 1997.
7. Janasz W., Kozioł K., *Determinanty działalności innowacyjnej przedsiębiorstw*, PWE, Warszawa 2007.
8. Khan M., Luintel K.B., *Sources of Knowledge and Productivity: How Robust is the Relationship?*, OECD Science, Technology and Industry Working Papers 2006, nr 6, OECD, Paris 2006.
9. Kowalik J., *Analiza poziomu innowacyjności państw Unii Europejskiej*, Zeszyty Naukowe Politechniki Częstochowskiej Zarządzanie 2015, nr 19.
10. Matusiak K.B. (ed.), *Innowacje i transfer technologii. Słownik pojęć*, Polska Agencja Rozwoju Regionalnego, Warszawa 2011.

11. Nawrocki T., *Innowacyjność produktowa przedsiębiorstw*, CeDeWu, Warszawa 2012.
12. OECD, Oslo Manual. *Guidelines for Collecting and Interpreting Innovation Data*, 3rd Edition, The Organisation for Economic Co-operation and Development, 2005.
13. Okoń-Horodyńska E., *Rola polskiej nauki we wzroście innowacyjności gospodarki*, PTE, Warszawa 2004.
14. Pece A.M., Simonab O.E., Salisteanuc F., *Innovation and economic growth: An empirical analysis for CEE countries*. „Procedia Economics and Finance” 2015, No. 26.
15. Pomykalski A., *Zarządzanie innowacjami*, PWE, Warszawa–Łódź 2001.
16. Porter M.E., *The Competitive Advantage of Nations*, The Macmillan Press Ltd, London 1990.
17. Schumpeter J.A., *Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process*, Porcupine Press, Philadelphia 1982.
18. Simpson P.M., Siguaw J.A., Enz C.A., *Innovation orientation outcomes: the good and the bad*, „Journal of Business Research” 2006, Vol. 59, Issue 10.
19. Ulku H. *R&D, Innovation, and Economic Growth: An Empirical Analysis*, „IMF Working Paper” 2004, No. 185.
20. Weresa M., *Polityka innowacyjna*, PWN, Warszawa 2014.
21. Wyrwa D., *Evaluation of the efficiency of the European Union’s innovative policy*, „Actual Problems of Economics” 2017, No. 1.
22. Zalewski A., *Reformy sektora publicznego w duchu nowego zarządzania publicznego* [in:] *Nowe zarządzanie publiczne w polskim samorządzie terytorialnym*, ed. A. Zalewski, SGH, Warszawa 2007.

### **DYLEMATY TWORZENIA POLITYKI INNOWACJI W PAŃSTWACH CZŁONKOWSKICH**

Kierunki zmian zachodzących w gospodarce światowej w ostatnich latach wskazują na przekształcenie gospodarki przemysłowej w gospodarkę opartą na wiedzy, wykorzystującą potencjał technologiczny i innowacyjny. Taka transformacja uwidoczniła przewagi konkurencyjne krajów i regionów specjalizujących się w produkcji zaawansowanych produktów. Celem artykułu jest zbadanie wpływu wydatków na badania i rozwój (B + R) na wzrost gospodarczy w państwach członkowskich Unii Europejskiej. Ponadto podjęta została próba dokonania oceny, czy istnieje znaczący związek między poziomem nakładów na tę działalność w poszczególnych krajach i ich innowacjami oraz między innowacjami a dochodem na mieszkańca, jak to jest postulowane przez endogeniczne modele wzrostu oparte na badaniach i rozwoju. Podstawowym źródłem informacji wykorzystanych do przeprowadzonej analizy była baza danych Eurostatu oraz raporty European Innovation Scoreboard. Otrzymane wyniki potwierdzają dodatni i statystycznie istotny wpływ rządowych wydatków na badania i rozwój, który jest główną siłą napędową wzrostu gospodarczego w analizowanym okresie. Kraje wysoko rozwinięte prowadzą badania mające na celu poszukiwania nowych źródeł innowacyjności i metod tworzenia potencjału innowacyjnego. Nakłady na innowacyjność często przynoszą długofalowe korzyści poprzez możliwość uzyskania pozycji lidera przez te kraje. Uzyskane wyniki pozwalają również stwierdzić, że kraje Unii Europejskiej, które nie mają

efektywnych sektorów badawczo-rozwojowych, wydają się promować swoje innowacje poprzez transfer technologii z innych państw. Takie postępowanie nie pozwoli im na zaatakowanie pozycji liderów. Mogą wykorzystywać jedynie strategię naśladownictwa.

**Słowa kluczowe:** innowacje, polityka innowacyjna, wzrost gospodarczy.

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## THE CONCEPT OF MAPPING THE BENCHMARKING PARTNERSHIPS OF CLUSTER ENTERPRISES – THEORETICAL APPROACH

Benchmarking is a response to the needs of contemporary enterprises participating in clusters, that search for solutions to increase efficiency and effectiveness of processes and to improve their competitive advantage. At the same time, the ability to build and develop partnership relations by cluster members is currently one of the key conditions of their external growth. The valid and important field of scientific research is intra-cluster benchmarking partnership. So far, none of the researchers has performed theoretical analyses in terms of the possibility of benchmarking adjustment to the needs of cluster members.

The purpose of the paper is to present the essence of benchmarking partnership of cluster enterprises and the concept of mapping of data and information exchange in intra-cluster benchmarking based on partnership. The main research methods are as follows: the analysis of literature sources and deductive reasoning. The selection of the specific field of theoretical considerations and conceptual works has been motivated by the identified knowledge gap within the scope of the indicated elements of the concept of benchmarking partnership of cluster enterprises.

In view of the presented definitions of basic conceptual categories closely related to the analysed form of partnership, it has been assumed that the essence of benchmarking partnership of cluster enterprises is a mutually beneficial exchange of information between cluster members, concerning their performance and best practices, according to partnership rules, that leads to improvement of performance of the parties involved in the benchmarking process.

**Keywords:** benchmarking, good practices, cluster, partnerships, benchmarking partnership.

### 1. INTRODUCTION

On the basis of the observation of the economic practice as well as the analysis theoretical considerations and the results of research on the cross-organisational relations included in the subject literature<sup>2</sup>, it may be concluded that currently, the combat with

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<sup>2</sup> See: J. Moore, S.R. Curry, *The Death of Competition*, "Fortune" 133/7 (1996), p. 142–144; G. Hamel, Y.L. Doz, C.K. Prahalad, *Collaborate with Your Competitors and Win*, "Harvard Business Review" 67/1 (1989), p. 133–139; W. Czakon, A.S. Fernandez, A. Minà, *Editorial – From Paradox*

competitors is a thing of the past, and the enterprises evolve along with the changing environment, redefine the relations and enter new forms of relationships with other business entities.

Partnership as a “higher level of business relations”<sup>3</sup> and *modus operandi* of enterprises in the third millennium determines a new quality in contacts and cross-organisational cooperation<sup>4</sup>. The ability to build, develop and improve cross-organisational partnership relations “is becoming one of the key factors of effective external growth”<sup>5</sup> and constitutes a basic competence for the growing number of organisations<sup>6</sup>. External growth, contrary to internal growth, that consists in developing on the basis of enterprise's own potential, is the development focused on cooperation.

An example of the effective form of implementation of cross-organisational partners' strategies and integration through cooperation, is a cluster. It is emphasised in the literature that clusters have become a global phenomenon and are established in all sectors of economy, from traditional industries to high-tech branches. Enterprises participating in a cluster, that base their external growth on establishing partnership relations with other members of such network, both in form of cooperation and cooptition, undoubtedly increase their chances to reach strategic benefits and to achieve and effectively maintain the competitive advantage. They may establish long-term partnership cooperation in fulfilment of common projects and cluster initiatives resulting in the improvement of market performance and competitiveness of involved partners. Benchmarking is the response to the needs of contemporary cluster enterprises, that do not intend to rely solely on their own concepts, solutions and experiences, but are also focused on learning and using the achievements of partners within the cluster.

## 2. OBJECTIVE AND METHODOLOGY OF CONCEPTUAL RESEARCH

A combination of three subjects of interest in the scientific and management field: cross-organisational partnership relations, clusters and benchmarking, gives a specific scope of research, encompassing benchmarking partnership of cluster companies.

It must be pointed out that the analysed form of partnership has not been a subject of previous in-depth scientific research. There is a cognitive gap in the subject literature in the knowledge on this form of cluster partnership, both in the theoretical and conceptual dimension, and also in the empirical aspect. This paper presents the results of research in the theoretical and conceptual field, focused on indicating the essence of benchmarking partnership of cluster enterprises, and also a graphical representation of the exchange of benchmarking data and information.

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*to Practice: the Rise of Coopetition Strategies*, “International Journal of Business Environment” 6/1 (2014), p. 1–10; W. Czakon, M. Rogalski, *Coopetition Typology Revisited – a Behavioural Approach*, “International Journal of Business Environment” 6/1 (2014), p. 28–46.

<sup>3</sup> E. Rigsbee, *PartnerSHIFT. How to Profit from the Partnering Trend*, New York 2000, p. 2.

<sup>4</sup> M. Szydełko, *Atrybuty i czynniki sukcesu partnerstwa przedsiębiorstw*, “Modern Management Review” XIX/4 (2014), p. 232.

<sup>5</sup> *Ibidem*.

<sup>6</sup> D. Latusek-Jurczak, *Formy współpracy międzyorganizacyjnej*, in *Relacje międzyorganizacyjne w naukach o zarządzaniu*, ed. A. K. Koźmiński, D. Latusek-Jurczak, Warszawa 2014, p. 46.

The purpose of the paper is to present the essence of benchmarking partnership of enterprises participating in a cluster as well as the results of mapping of data and information exchange in intra-cluster benchmarking based on partnership.

The indicated cognitive gap in the knowledge on benchmarking partnership of cluster enterprises requires a significant epistemological effort and conceptual work. This paper shall contribute to filling this gap.

The purpose of the work has determined the selection of research methods, such as the analysis of literature sources and deductive reasoning. A formative approach to the conceptualisation of benchmarking partnership of companies within a cluster has been used.

### 3. BENCHMARKING PARTNERSHIP OF CLUSTER ENTERPRISES – THEORETICAL BACKGROUND

The review of the literature and observations on business practices lead to a conclusion that the concept of benchmarking is so vast and flexible that this process might be adjusted to conditions of functioning of different types of social and economic structures. In this connection, it is possible to transfer the benchmarking theory to the cluster background. Determining the essence of benchmarking partnership of enterprises within a cluster requires setting certain conceptual categories, closely related with that form of partnership. These are the following categories: partnership of enterprises, cluster, benchmarking and benchmarking partnership of enterprises.

The concept of partnership evokes a variety of associations that result from using this term in an informal and scientific sense<sup>7</sup>. The term of partnership is interpreted in different ways both in the management sciences and in the business practice, and in some cases it is also used in wrong contexts. The variety of definitions of enterprise partnerships results mainly from the shift of importance to its different attributes. M. de Lurdes Veludo points out the cause of ambiguity of partnership that is rarely mentioned in the literature. She claims that it is the lack of common vision (stream) of scientific research concerning its essence<sup>8</sup>. Attempting to define partnership, the researchers determine its limits not only using specific attributes, but also dimensions, critical factors and success indicators<sup>9</sup>. For the purpose of this paper it has been assumed that partnership of enterprises consists in voluntary and dynamic relations built to reach common goals, leading to achieve additional synergistic effects and competitive advantage<sup>10</sup>. The distinctive features of this type of relations include: mutual trust of partners, their involvement in common activities, sharing risks and benefits and also mutual exchange of information. Partnership reflects the essence of close cooperation of enterprises and is a form of implementation of the cross-organisational win-win strategy, in which the winners are all participants of the partnership.

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<sup>7</sup> M. Szydełko, *Atrybuty i czynniki...*, p. 233.

<sup>8</sup> M. de Lurdes Veludo, *Business Relationships in the Automotive and Component Industries in Portugal*, Ph.D. Thesis, School of Business and Management University of Glasgow, Glasgow 2005, p. 81, <http://theses.gla.ac.uk/1544/1/2005veludophd.pdf> (available 13 March 2018).

<sup>9</sup> See: P.W. Mattessich, M. Murray-Close, B.R. Monsey, *Collaboration: What Makes It Work. A Review of Research Literature on Factors Influencing Successful Collaboration*, Amherst H. Wilder Foundation, Saint Paul, Minnesota 2001, pp. 7-29; M. de Lurdes Veludo, *Business Relationships...*, p. 81-99.

<sup>10</sup> M. Szydełko, *Atrybuty i czynniki...*, p. 240.

According to the classic definition introduced by M.E. Porter (1998), clusters are „geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate”<sup>11</sup>.

Clusters can be characterized as a group of independent business entities and related governmental and local government bodies, non-governmental organisations as well as other business support organisations that:

- are geographically concentrated in one or several regions, but may also be global,
- specialise in a specific field of activity, constituting the core of cooperation, and use common technologies and skills,
- compete and cooperate in the same or related branches,
- are inter-related with an extensive system of vertical and horizontal formal and informal relations,
- form a more or less institutionalised and formalised group,
- accepted a common path of development and strategy,
- form partnerships,
- develop external relation capital, reflected in creating a firm framework of multi-dimensional cooperation,
- are focused on sharing assets and creating knowledge and innovation.

Benchmarking refers to “gathering what others are doing, usually to evaluate whether you are operating efficiently or identify areas for improvement”<sup>12</sup>. In a general approach, it is a process of creative improvement of an organisation through learning from peers and using their best practice experiences in a given field. In a detailed approach, benchmarking is a process implemented both on the operation and the strategic level of an organisation, consisted in systematic measuring of processes and comparing own experience (results) and solutions in various fields (constituting the subjects of benchmarking) with best practices within and outside the organisation. The last stage of the benchmarking process is the creative adjustment of best practices, that allows to reach the set measurable and non-measurable goals, not followed by anti-competitive effects.

The literature of benchmarking often uses the term “best practice”. A reasonable question has been formulated by T. Wireman: does “best” mean: most efficient, most cost effective, most customer service oriented or most profitable?<sup>13</sup> The author replied himself, claiming that “best practices are good practices that have worked well elsewhere. They are proven and have produced successful results. They must focus on proven sources of best practices”<sup>14</sup>.

The review of the literature leads to a conclusion that the benchmarking partnership phenomenon has not been the subject of any previous in-depth scientific analyses. The concept of “benchmarking partnerships” has been defined by T. Bendell, L. Boulter and

<sup>11</sup> M.E. Porter, *On Competition*, Boston 1998.

<sup>12</sup> R.S. Sharma, M. Iqbal, M. Victoriano, *On the Use of Benchmarking and Good Practices for Knowledge Management for Development*, “Knowledge Management Research & Practice” 2013, No. 11/4, p. 352.

<sup>13</sup> T. Wireman, *Benchmarking Best Practices in Maintenance Management*, New York 2004, p. 35–36.

<sup>14</sup> *Ibidem*.

P. Goodstadt in a popular book titled "Benchmarking for Competitive Advantage". For the purposes of this paper, the term "benchmarking partnerships" shall mean "mutual beneficial exchange of best business practice information which should lead to improved performance for all the organisations involved"<sup>15</sup>.

The confrontation of the scope of the four categories characterized above gives rise to a conclusion that the essence of benchmarking partnership of enterprises within a cluster is a mutually beneficial exchange of information between enterprises participating in a cluster, concerning their performance and best practices in various fields of activity, according to partnership rules, that leads to improvement of performance of the parties involved in the benchmarking process (micro level) and improvement of the cluster competitive advantage (meso level).

It must be emphasised that establishing benchmarking partnerships of enterprises within a cluster is a positive factor that improves competitive advantage of that type of cross-organisational networks, which in turn fosters innovation and economic competitiveness.

#### **4. MAPPING OF BENCHMARKING PARTNERSHIP OF CLUSTER ENTERPRISES SUPPORTED BY AN IT PLATFORM AND A MODERATOR**

The specified benchmarking goals and the methods of fulfilment, as well as the potential of benchmarking partners, including the skills in acquiring and processing credible data and also creating and using the knowledge, determine the efficiency and effectiveness of activities within the scope of intra-cluster benchmarking.

It must be emphasised that currently the knowledge, that is purposefully acquired, created, provided and used, is becoming the most important strategic resource of enterprises. The data and information obtained in the course of the benchmarking partnership within the cluster are worthless until they are processed and transformed into knowledge useful in the process of adopting best practices. Consequently, intra-cluster benchmarking should constitute an indispensable part of the knowledge management system in enterprises that strive for effective management of this resource and achieving relevant measurable benefits.

Considering the specific character of clusters, two approaches to benchmarking partnership may be distinguished. Both variants assume that "in intra-cluster benchmarking, information is derived from benchmark-partners, that is the compared business entities, with a model status in terms of best practices in a given field"<sup>16</sup>. The first approach assumes that benchmarking partnership is pursued by cluster companies within a single benchmarking group, and is supported by a moderator and an IT tool (platform). The second approach of fulfilment of the described concept refers to benchmarking partnership of enterprises within a number of benchmarking groups, aimed at exchanging and adopting model practices, in which the activities of partners are not supported by a moderator or a benchmarking platform. Since the length of this paper is limited, it focuses only on the characteristics of selected elements of the first approach to benchmarking partnership within a cluster.

It must be pointed out that the executive management of enterprises grouped in a cluster should voluntarily accept participation in benchmarking, with respect of partnership rules

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<sup>15</sup> T. Bendell, L. Boulter, P. Goodstadt, *Benchmarking for Competitive Advantage*, London 1998, pp. 124–125.

<sup>16</sup> M. Szydełko, *Ramy koncepcyjne zastosowania benchmarkingu w klastrze*, „Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu” 2015/399, p. 461.

within a single benchmarking group supported by a moderator and an IT platform. The decision on participation in intra-cluster benchmarking should be preceded by the analysis of the proposals made by the initiator of the undertaking and the confrontation of the benefits and risks related with that form of learning from peers. The initiators of benchmarking partnership may be:

- cluster animator (coordinator),
- cluster leader (enterprise or other institution inspiring to take actions within the cluster, having a strong position in the cluster structure),
- enterprise participating in a cluster, not acting as its leader,
- representatives of academic institutions,
- representatives of business support institutions (e.g. enterprises offering services in consulting or design and development of a platform including the benchmarking tool).

An attempt of graphical representation of data and information exchange within a benchmarking group has been made. Figure 1 presents a diagram referred to as a map of benchmarking partnership of cluster enterprises. Its components include:

- different types of market entities constituting a benchmarking group (main participants of the undertaking),
- data and information exchange platform,
- moderator (internal or external),
- potential relations between these components, reflecting the benchmarking data and information exchange,
- market entities not interested in learning from peers within a cluster benchmarking group (potential participants of the undertaking).

The benchmarking data and information exchange platform is a multifunctional IT tool available in the electronic environment. Its major function is to facilitate the selection of benchmarking partners of enterprises. Its role should be considered mainly with reference to benchmarking data and information (financial and non-financial measures<sup>17</sup>). It allows collecting, processing, monitoring, comparing and visualising data and information.

The key actions at the stage of building a benchmarking partnership within a cluster include a common agreement between potential benchmarking partners concerning the methods of data collection and the functional assumptions of the IT platform, and also the identification of comparable benchmarking indicators (titles and descriptions) that would be included in that platform. Another important aspect is arranging by the interested parties the method of presentation of good practices and exchange of experiences between the benchmarking partners. It is recommended that the parties share their good practices and experiences during work meetings of the cluster benchmarking group.

The management of the enterprises that intend to participate in the benchmarking partnership in a cluster supported by an IT platform should cooperate with the moderator. The moderator is responsible for the entire organisation of the undertaking and improving the benchmarking process using the gained experience. In particular, the moderator must

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<sup>17</sup> The literature refers to such data and information as the “benchmarking indicators”.

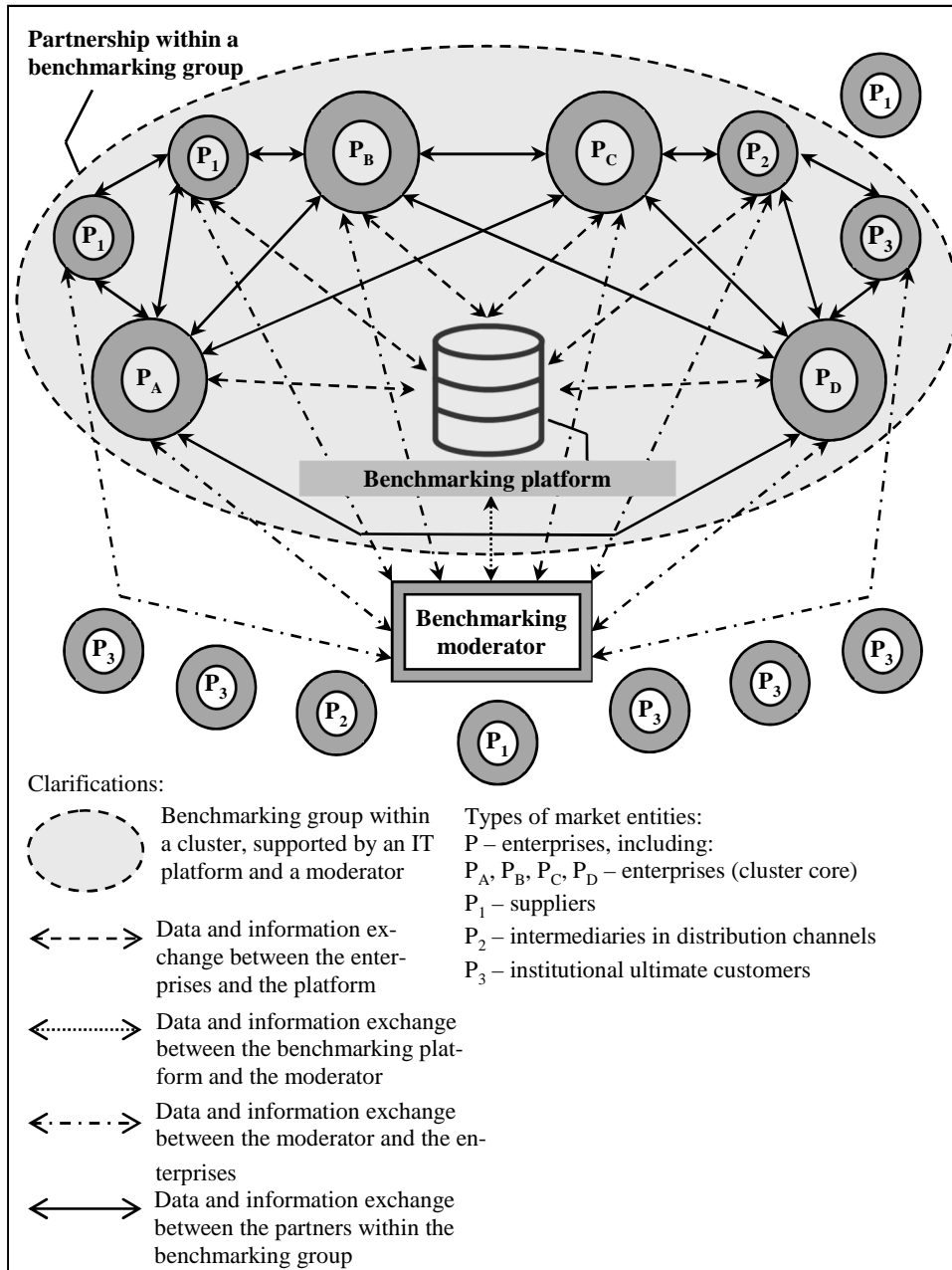


Figure 1. A map of benchmarking partnership of cluster enterprises supported by a benchmarking platform and a moderator

Source: Author's own work.

ensure training in entering and implementation of data in the benchmarking database, in which leaders representing the cluster enterprises would participate. Such training allows to eliminate differences in competences among the representatives of enterprises intending to participate in the benchmarking partnership.

## 5. CONCLUSIONS

The purpose of conceptual considerations was to indicate the essence of benchmarking partnership of cluster enterprises and present the benchmarking data and information exchange diagram in the form of the map of these form of partnership.

An attempt of graphical representation of the map of benchmarking partnership of cluster enterprises has been made on the basis of the following elements: partners within the benchmarking group, moderator, electronic platform, relations between them reflecting data and information exchange, as well as potential participants of the undertaking. In the context of the described issue, it needs to be emphasised that the practice of benchmarking proves that it is much easier to obtain the required information if there is a possibility of equivalent exchange of such information between potential benchmarking partners. Additionally, intra-cluster benchmarking should be particularly important in the implementation of the knowledge management strategy in cluster enterprises focused on absorbing knowledge from the outside in order to learn from the other members of the cluster.

The effect of the conceptual efforts made in the course of the research are the implications both for the management theory and the management practice in cluster enterprises. Appropriate building and development of benchmarking partnership within a cluster requires relevant methodological guidelines. An interesting proposal in terms of the scientific aspect of development of the described concept is mapping the exchange of data and information in intra-cluster benchmarking. The described approach to benchmarking partnership, that involves participation of a moderator and the use of an IT tool, may be used in practice by cluster enterprises and coordinators of that specific form of network in order to:

- 1) check the possibilities of implementation of such form of partnership within a cluster,
- 2) intensify intra-cluster benchmarking,
- 3) adjust the current scheme of behaviour in intra-cluster benchmarking partnership.

To sum up the considerations presented herein, it needs to be emphasised that the key factors in the presented concept are previous cross-organisational relations with partnership character and undisturbed exchange of benchmarking data and information between: the partners within a cluster benchmarking group, the moderator and the IT benchmarking platform. In the course of intra-cluster benchmarking, partners often exchange confidential information, thus the most important rule should be building trust on the grounds of respect of the legal and ethical standards.

## REFERENCES

1. Czakon W., Fernandez A.S., Minà A., *Editorial – From Paradox to Practice: the Rise of Coopetition Strategies*, „International Journal of Business Environment” 2014, 6/1.
2. Czakon W., Rogalski M., *Coopetition Typology Revisited – a Behavioural Approach*, „International Journal of Business Environment” 2014, 6/1.



3. De LurdesVeludo M., *Business Relationships in the Automotive and Component Industries in Portugal*, Ph.D. Thesis, School of Business and Management University of Glasgow, Glasgow 2005, <http://theses.gla.ac.uk/1544/1/2005veludophd.pdf> (available: 13.03.2018).
4. Hamel G., Doz Y.L., Prahalad C.K., *Collaborate with Your Competitors and Win*, „Harvard Business Review” 1989, 67/1.
5. Latusek-Jurczak D., *Formy współpracy międzyorganizacyjnej [w:] Relacje międzyorganizacyjne w naukach o zarządzaniu*, red. A.K. Koźmiński, D. Latusek-Jurczak, Wolters Kluwer business, Warszawa 2014.
6. Mattessich P.W., Murray-Close M., Monsey B.R., *Collaboration: What Makes It Work. A Review of Research Literature on Factors Influencing Successful Collaboration*, Amherst H. Wilder Foundation, Saint Paul, Minnesota 2001.
7. Moore J., Curry S.R., *The Death of Competition*, „Fortune” 1996, 133/7.
8. Rigsbee E., *PartnerSHIFT. How to Profit from the Partnering Trend*, John Wiley and Sons, New York 2000.
9. Szydełko M., *Atrybuty i czynniki sukcesu partnerstwa przedsiębiorstw*, „Modern Management Review” 2014, XIX/4.
10. Szydełko M., *Ramy koncepcyjne zastosowania benchmarkingu w klastrze*, „Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu” 2015/399.
11. Sharma R.S., Iqbal M., Victoriano M., *On the Use of Benchmarking and Good Practices for Knowledge Management for Development*, “Knowledge Management Research & Practice” 2013, 11/4.
12. Porter M.E., *On Competition*, Harvard Business School Press, Boston 1998.
13. Wireman T., *Benchmarking Best Practices in Maintenance Management*, Industrial Press, New York 2004.
14. Bendell T., Boulter L., Goodstadt P., *Benchmarking for Competitive Advantage*, Financial Times Pitman Publishing, London 1998.

## KONCEPCJA MAPOWANIA PARTNERSTWA BENCHMARKINGOWEGO PRZEDSIĘBIORSTW TWORZĄCYCH KLASTER – UJĘCIE TEORETYCZNE

Benchmarking jest odpowiedzią na potrzeby współczesnych przedsiębiorstw tworzących klastry, które poszukują rozwiązań w zakresie zwiększania efektywności i skuteczności realizowanych procesów oraz podnoszenia ich konkurencyjności. Jednocześnie umiejętność budowania, rozwoju i doskonalenia partnerskich relacji przez członków klastra jest obecnie jednym z kluczowych warunków ich skutecznego wzrostu zewnętrznego. Aktualnym, ważnym i interesującym poznawczo obszarem badań naukowych jest benchmarking wewnątrzklastrowy o charakterze partnerskim. Koncepcja partnerstwa benchmarkingowego przedsiębiorstw klastrowych wpisuje się w postulowane obecnie w naukach o zarządzaniu paradygmaty relacji i współdziałania przedsiębiorstw w organizacjach sieciowych. Żaden z badaczy nie prowadził do tej pory rozważań teoretycznych w zakresie możliwości adaptacji benchmarkingu do potrzeb członków klastra.

Celami artykułu są: wskazanie istoty partnerstwa benchmarkingowego przedsiębiorstw tworzących klastry i przedstawienie koncepcji mapowania przepływu danych i informacji w benchmarkingu wewnątrzklastrowym opartym na partnerstwie. Postawiony cel zdeterminował wybór takich metod badawczych, jak analiza źródeł literaturowych i rozumowanie dedukcyjne. Wybór wskazanego kierunku rozważań teoretycznych i prac koncepcyjnych został podyktowany zidentyfikowaną luką wiedzy w zakresie wskazanych elementów koncepcji

partnerstwa benchmarkingowego przedsiębiorstw klastrowych. Najważniejsze wnioski płynące ze zrealizowanego postępowania badawczego można uznać za implikacje o charakterze teoriopoznawczym i praktycznym.

W świetle przedstawionych ujęć definicyjnych podstawowych kategorii pojęciowych ściśle związanych z analizowaną formą partnerstwa przyjęto, że partnerstwo benchmarkingowe oznacza wzajemnie korzystną wymianę informacji z zachowaniem zasad partnerstwa przez przedsiębiorstwa tworzące klaster, o osiągniętych wynikach i najlepszych praktykach stosowanych przez nie w różnych obszarach działalności, która prowadzi do poprawy wyników benchmark-partnerów.

**Słowa kluczowe:** benchmarking, dobre praktyki, klaster, partnerstwo, partnerstwo benchmarkingowe.

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## UNMANNED AIRCRAFT AS A GROWING HAZARD FOR AVIATION SAFETY

Systematically growing use of unmanned aircraft (UA) creates new threat areas for air traffic, such as the dangerous approaching of UA to manned aircraft during flights with passengers on a board. Such situations have been observed many times not only in Poland, but also in other countries airspace. The reason for that, according to the author, is primarily the widespread availability of various types of drones, as well as lack of full legal provisions. The author in that article presents growing threats, coming from unauthorized usage of unmanned aerial vehicles in airspace, to other kinds of aviation (passenger aircrafts in particular) in airports vicinity. Unidentified drones appearing next to passenger airplanes, during its approach to landing, as well UA landing on sites of nuclear power plants, military units, and even on the White House interior square, today are not something extraordinary. Therefore drones are such a big challenge. Their unlawful use may threaten air traffic safety, or it can be used to carry out terrorist attacks, sabotage, including actions against critical infrastructure, or to violate people's privacy. The new situation creates the scientific need for a comprehensive analysis of the problems. Many aspects presented in the article may contribute to better understanding the new challenges, as well it may be helpful for further researches in that area.

**Keywords:** unmanned aircraft, air traffic security, aviation security threats, aviation law.

### 1. INTRODUCTION

The purpose of the paper is to provide an overview of drones' utilization within civilian societies as a challenge for the security of air traffic. It will also analyse the term 'drone' and UA within civilian terminology, and more precisely, to identify source elements which are critical to decide if a selected flying object could be classified as such. Their utilization and tasks will be also mentioned. The legal aspects of using unmanned flying vehicles will be discussed as utilization of UA in air space is growing threat for manned platforms causing a real danger. It is assessed that the number of private users of UA will increase, probably expansively. It will be supported by growing availability of new technologies, lowering costs so their purchase for variety of application will be exploited for private and commercial purposes. It is ineffectual to try to limit UA utilization as they could not be fully controlled; it is rather requesting looking for building compromise allowing the develop-

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ment of that branch of aviation. Parallel, it is necessary to treat such the handlers and operators as another important group of air space users.

The future fully autonomous unmanned aerial vehicles will more effectively eliminate errors but it is still to come in the future. Currently as of their growing presence there is still a need to clearly formulate regulations and law to avoid incidents especially toward civilian air traffic. Another challenge is that those could be used to threaten security of societies by using UA as a tool in hands of terrorists and extremists. The drones' role is increasing every year and for example "by 2020, the Federal Aviation Administration (FAA) expects to have as many as 30,000 drones flying over the United States"<sup>2</sup>.

## 2. AN OVERVIEW OF DRONES/UA

Drones started to be well-known when such the type of aerial vehicles supported US forces in Iraq and Afghanistan by conducting combat missions; UAV 'Predator' was a symbol of their employment. They were equipped with artificial intelligence, equipment and armament allowing conducting tasks in all weather conditions. Norman Friedman highlighted drones role as they allow concentrating and focusing humans only in those spots which are critically important and the rest should be covered by non-human assets like UAVs<sup>3</sup>. The Oxford Dictionary is defining a drone as "a remote-controlled pilotless aircraft or missile"<sup>4</sup> giving many option to recognize such the platforms. The Collins Dictionary is providing extended definition linked with a remote control as "a drone is a type of aircraft that does not have a pilot and is controlled by someone on the ground" and another as "a pilotless radio-controlled aircraft"<sup>5</sup>. Based on commonly known definitions it could be acknowledged that a 'drone' is an aerodynamic flying system to conduct multiple tasks and those could be remotely controlled by using joystick or digital interface backed by a device used for automatic control. UA could be equipped in blades or wings, and original intentions of their utilization were to replace people/crews when conducting high risk aerial missions. The armed aerial vehicles designed to conduct combat missions are currently rather common and they are known as *Unmanned Combat Air Vehicles (UCAVs)* and they could perform variety of tasks<sup>6</sup>. The important factor is that many military solutions are transferred into civilian aviation. Terms 'drone' and UA are often treated as interchangeable and used as equivalent.

ICAO, in general, for unmanned aerial platforms uses terms: Remotely Piloted Aircraft (RPA) or in the broader sense Remotely Piloted Aircraft System (RPAS) . Based on that terminology are created legal regulations at the global (ICAO) and regional level (EASA,

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<sup>2</sup> P. Paganini, *Hacking Drones... Overview of the Main Threats*, General Security 4 June 2013, <http://resources.infosecinstitute.com/hacking-drones-overview-of-the-main-threats/> (accessed: 22 February 2017).

<sup>3</sup> N. Friedman, *Unmanned Combat Air Systems*, Naval Institute Press, Annapolis 2010, p. 46.

<sup>4</sup> The Oxford Living Dictionaries, <https://en.oxforddictionaries.com/definition/drone> (accessed: 22 February 2017).

<sup>5</sup> The Collins Dictionary, <https://www.collinsdictionary.com/dictionary/english/drone> (accessed: 22 February 2017).

<sup>6</sup> See in details in: L. Cwojdzński, *Zadania wykonywane przez systemy platform bezałogowych i powody ich stosowania*, Program „Pięć żywiołów. Wolność – informacja – bezpieczeństwo”, 2014, p. 2–3, <http://www.5zywiolow.pl/wp-content/uploads/2014/02/zasady-uzycia-uav-leszek-cwojdzinski.pdf> (accessed: 25 January 2017).

EUROCONTROL, European Commission) levels. In the practical meaning the very popular terminology is of Unmanned Aircraft (UA) and Remotely Piloted Aircraft (RPA). Distinguish these terms is very important in the context of the safety of air operations, especially in connection with the future integration of manned and unmanned aviation systems.

The drone definition is rather general as they are described as: an unmanned, remotely controlled aerial vehicle or a missile designed for precision attack. However, just preliminary analysis of the definition is discovering two contradictory pieces of information. First, it is questionable if a single use device designed for a single mission (e.g. destruction of pre-planned target) could be named 'drone'. Second, to be recognized as 'drone' such a device should be remotely controlled or should be able to perform fully autonomous flight (according to pre-planned route). Drones' users, especially fans of modelling, are extending the definition by including two more elements. Those are: range of UA and necessity of locating advanced devices and sensors on UA board to operate a device using control system; however in such the case it is not just a *Remotely Piloted Vehicle (RPV)*. *RPVs* are also known as of military operations as those were used by Israel already in 1982 during operations in Lebanon; Israel is one of leading nations in such technologies<sup>7</sup>. Such UA are equipped with cameras, to see what is seen by a pilot of a manned aircraft, and they possess modern version of tool known as *First-Person View (FPV)* or remote-person view; some are naming it as a 'video piloting'. So, it is not a drone in classical understanding. Though, as soon as it is achieving an option of remote control e.g. using personal computer, working and 'land based control station' allowing to start autopilot and to switch into an automatic mission control mode, we are undoubtedly dealing with UA; it means an actual drone following the extended definition.

The UA include a subgroup called *Autonomous UAVs*, which are vehicles completely controlled by computers excluding an option of a manual control by an operator (e.g. performing missions according to pre-planned route within designated area). It is causing a question: Could be *RPVs*, equipped with camera allowing *FPV* flights, recognized as UA? The answer is that rather no; those are still remotely piloted aerial vehicles and not drones. As such those should not be a subject of detailed law regulations but rather they such be exposed toward strict limitations regarding their access to air space, especially as the number of such devices will grow very rapidly.

Consequently, it will be impossible to control or to identify all of them and those will 'litter' the air space so only solution is to learn how to deal with them as there is no other choice. According to James Hing, currently there are three modes of operating *UAVs*: external piloting (EP) controlling flight by line of sight; internal piloting (IP) using ground station and on board camera and autonomous flight<sup>8</sup>. An example of full autonomy is advanced US Global Hawk<sup>9</sup> or Airbus Group's (former *European Aeronautic Defence and*

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<sup>7</sup> M. Pardesi, *Unmanned aerial vehicle: missions, challenges, and strategic implications for small and medium powers* [in:] B. Loo (ed.), *Military Transformation and Strategy. Revolutions in Military Affairs and Small States*, published by Routledge, New York 2009, p. 102.

<sup>8</sup> J. Hing, P. Oh, *Development of Unmanned Aerial Vehicle Piloting System with Integrated Motion Cueing for Training and Pilot Evaluation*, in K. Valavanis, P. Oh, L. Piegl (eds.) *Unmanned Aircraft Systems, International Symposium On Unmanned Aerial Vehicles, UAV'08*, Springer Science & Business Media 2008, p. 6-7.

<sup>9</sup> *Global Hawk*, Website Northrop Grumman Corporation, <http://www.northropgrumman.com/capabilities/globalhawk/Pages/default.aspx> (accessed: 26 January 2017).

*Space Company* – EADS) system *Eagle* (French: *Système Intérimaire de Drone Male – SDIM*)<sup>10</sup>; both systems could support maritime and air traffic, internal national security, search and rescue operations and many other tasks. There are many UAVs with an option to switch between modes. All the modes must have close integration with any platform security, remote piloting and payload management (Fig. 1).

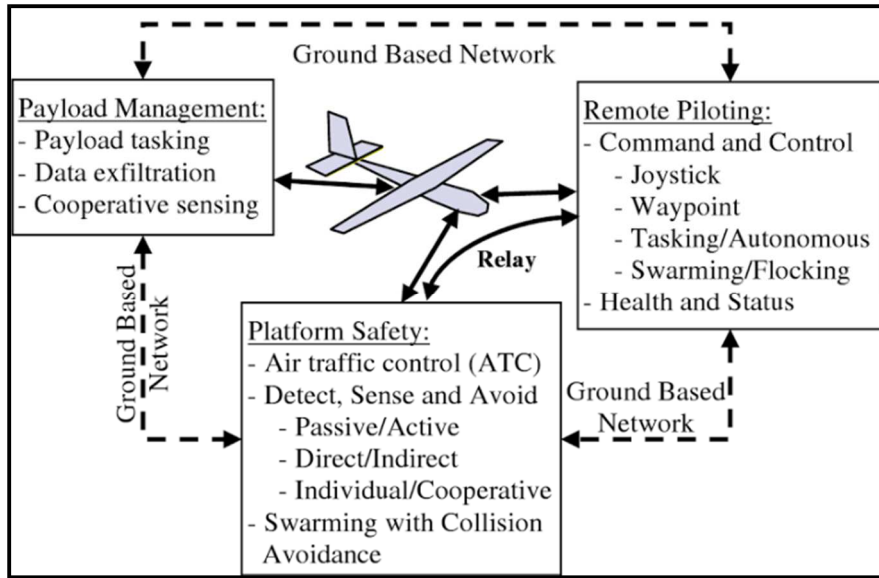


Figure. 1. Different types of communication in Unmanned Aircraft.

Source: E. Frew, T. Brown, *Networking Issues for Small Unmanned Aircraft Systems* [in:] K. Valavanis, P. Oh, L. Piegl (eds.) *Unmanned Aircraft Systems, International Symposium On Unmanned Aerial Vehicles, UAV'08*, Springer Science & Business Media 2008, p. 25.

At the present it is not so easy to fully predict to what purposes drones could be used in the future. The society is usually considering them as unmanned platforms to be used by armed forces or national law enforcement services to enhance their capabilities to create safe and secure environment. Is it to be continued in the future? The answer is given every day as we can observe them for new applications. We could say, with high degree of certainty, that in next one or two decades those devices will be even more ordinary element of people's daily life. However, it should not be forgotten that drones are not only supporting security as those are also real threat for overall security systems, including personal security. Unmanned solutions are linked with some "systemic gaps" and they could become challenging for security and it is not only linked with terrorism. As a result, technological development within unmanned solutions sphere must be closely interconnected with accelerating study also in such the fields as: law, teleinformatics systems, crisis management,

<sup>10</sup> *Eagle MALE System Medium Altitude Long Endurance UAV*, Defense Update, as of 9 December 2006, <http://defense-update.com/products/e/eagle-UAV.htm> (accessed: 30 January 2017).

defence and security including internal security of each single nation. It should be followed by companies operating on an insurance market taking into account common accessibility of drones based on lowering costs causing a risk of unexpected incidents. Such the UAV type systems must be treated with great importance within an air space management system with the focus on security. According to US Department of Defence some 70% of manned aircraft catastrophes<sup>11</sup> are caused by human errors and further autonomy will not eliminate it as still a human will be controlling them. But now “pilots” being outside of cockpit will have increased tendency to make more risky decisions with lower situational awareness and limitations to face unexpected emergencies and situations.

Drones, similarly to any airspace apparatus, are functioning as a system composed of two major elements: man and machine. A machine, in that sense the air element of the system, is similar to any type of aircraft; the only real difference is its size. The ground element is a control station, stationary or mobile, considered as a working space for the land based controllers/operators. As such, a drone should be interpreted as a typical airship, which is remotely controlled in real time when possessing software to control all the flight parameters and also modules and interfaces to enable exchange of data. Typical UA is also equipped in a variety of sensors connected with software avionics and also optionally with weapon systems and autopilot. Such the broad range of equipment is causing that a drone is not so different when compared with a manned air platform. The only major and typical difference is related to the location of a crew. A ground based control station, used to control drones, consists of software, interface modules and designated and trained personnel. It is worth to notice, that from security point of view, every air and land component of a drone could be a subject of terrorist or cyber-attack; in specific conditions it could cause a danger for air traffic and aviation in general. It is also relatively easy to overtake control of a drone. Todd Humphrey, professor at the University of Texas at Austin’s Radio navigation Laboratory, has demonstrated that hacking a civilian drone is relatively easy. He presented for the Department of Homeland Security that using a limited budget and some persons, he is able to “send signals to an UAV’s GPS receiver, hijack the aircraft in mid-air, and control its route”<sup>12</sup>. He spent some 1,000 USD on equipment and designing an application. This example confirms the magnitude of the terroristic threat associated with the use of UAVs and how low costs are needed to take over control another UAV to perform a terrorist attack on the passenger aircraft for instance.

### 3. UA AS AIRSPACE’S SECURITY CHALLENGE

The US Congress has adopted an act regarding modernization and reform of the Federal Aviation Administration (FAA). The focus of the reform has been to execute government actions to speed up an integration of all the drones within US airspace, which is recognized to be the most overcrowded airspace in the world. It was forced by enormous number of requests the FAA has been receiving to grant certificates for variety of commercial activities using new capabilities; it was mainly linked with certificates to use drones for videoing. One of reasons was that even “model aircraft may pose a safety hazard to full-scale aircraft

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<sup>11</sup> J. Hing, P. Oh, *Development of Unmanned...*, p. 5–6.

<sup>12</sup> P. Paganini, *Hacking Drones ... Overview of the Main Threats...*

in flight and to persons and property on the ground”<sup>13</sup>. However, such the permissions were treated as precedents; the situation has changed as for now and those permissions are rather norm than precedent. The applications are mainly related to different branches of industry and economy, as: agriculture, energy sector, health care, protection of natural environment, postal services and also tourism. US Congress recognizing a challenge related to drones was concerned that those are violating right to privacy and imposed some limitations e.g. they cannot be weaponized, surveillance only in public spaces, collected videos must be deleted in 24hours (judge could extend it)<sup>14</sup>. There is also a law against ‘drone stalking’ and ‘peeping drones’ to avoid spying or track individuals. Among others reasons, the request of the Amazon Company to be granted approval to deliver post using drones has grasped the attention of government. Similar project had been considered by the German DHL Company and finally the company was permitted to deliver such the drone based services as the first provider in Europe<sup>15</sup>. Also other global multinational technology companies e.g. Google and Facebook have expressed their interest in exploitation of options offered by drones.

Currently, the most challenging issue related to aviation security is drones’ unexpected presence in the vicinity of airports, and even within their controlled zone. In that case the creativeness of amateur pilots is unlimited crossing often the line of stupidity, which could have very serious consequences. Many cases of such the approach of senseless drones’ pilots (or rather pseudo-pilots) could lead to air catastrophes, especially when closing to manned aircraft (e.g. passenger airliners). Similar instances are happening more often and they are publicized by mass media. A collision with a small flying object could have a number of implications. For instance, a crash of a passenger aircraft with a bird at high speed is dangerous; so what could be consequences of similar crash with metal drone which weight is usually reaching a few kilograms. It is adequate to mention famous landing of a crippled US Airways jetliner (Flight AWE1549) on the Hudson River in January 2009<sup>16</sup>. It was the result of a clash with a skein of flying Canada geese and the result both jet engines lost power. It caused pilot to land on the river as the plane was not able to reach the closest airfield. The landing was a real miracle as nobody was injured and a member of the US National Transportation Safety Board called it “the most successful ditching in aviation history”<sup>17</sup>.

Drones related incidents are increasingly common in Europe and in the world. In October 2014 the UK Airprox Board<sup>18</sup> (the agency responsible for safety in aviation) revealed that when an aircraft (AT72) was on the final approach to land on the Southend airfield the

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<sup>13</sup> D. Marshall, *U.S. Aviation Regulatory System*, in D. Marshall et al. (eds.), *Introduction to Unmanned Aircraft Systems*, CRC Press Boca Raton 2011, p. 40.

<sup>14</sup> H. Gusterson, *Drone. Remote Control Warfare*, the MIT Press, Massachusetts 2016, p. 155.

<sup>15</sup> J. Simonides, *Prawnomiędzynarodowe problemy użycia dronów w walce z terroryzmem. Debaty i kontrowersje* (Legal and international problems of using drones to fight terrorism. Debates and controversies), Bellona Quarterly No 4, Warsaw 2014, p. 35.

<sup>16</sup> The catastrophe of the US Airways Flight 1549 (AWE1549) took place on January 15, 2009 when an Airbus A320 piloted by Captain Sullenberger made an emergency water landing in the Hudson River in New York.

<sup>17</sup> J. Olshan, *Quiet Air Hero is Captain America*, New York Post 17 January 2009, <http://nypost.com/2009/01/17/quiet-air-hero-is-captain-america/> (accessed: 12 March 2017).

<sup>18</sup> The Home Page of the UK Airprox Board (UKAB) website available at: <http://www.airprox-board.org.uk/>



crew noticed a drone flying “in the very close vicinity” of the aircraft’s right wing<sup>19</sup>. What was noticeable, there were as many as 75 passengers on the board. According to incident report “the object, believed to be a quadcopter, came within 25m of the AT72” and the co-pilot “formed the impression that the quadcopter had been flown deliberately close”<sup>20</sup>. Moreover, “air traffic controllers at Southend airport told the pilot ‘a couple’ of quadcopters had previously been reported in the area”<sup>21</sup>. A number of similar incidents have already happened in US. In 2014 during just a single month there were dozens of air space episodes involving drones. Among them, two were very serious as pilots were forced to suddenly change flight settings and in a few cases, UAVs were flying very close to passenger aircraft. The main perpetrators of these problems, similarly to European countries, have been small machines remotely operated by civilian persons. It is a side effect of increased number of unmanned flights in US and in Europe. Those are used for variety of purposes, primarily for civilian applications to provide aerial picture of selected areas, but also for other domains as meteorology.

As presented above the consequences of uncontrolled flights of drones could be rather dangerous for aviation safety so it is necessary to ‘civilize’ their use, especially as large multinational retail chains (e.g. Google and Amazon – supplies of goods and services) are considering innovative ways of goods’ delivery all over the world. If they will be successful soon the airspace will be overcrowded by unmanned flying suppliers. This is why very clear and precise regulations must be developed as soon as possible taking into consideration safety from one side and civil rights and sovereignty of business practices on the other.

#### 4. LEGAL ASPECTS OF REGULATING USE OF UA

According to the Polish law there is no clear and unambiguous definition of an unmanned aerial vehicle and there is also lack of precise description of such the device. Typical term used in variety of jargons is naming them as ‘drones’. Such the term is widely used by media, particularly as violations of air space by drones is more frequent. Within academic community and among specialists such the devices are mainly recognized as *Unmanned Aerial Vehicles (UAVs)* and in context of using wider technologic approach, they are defined as *Unmanned Aircraft Systems (UASs)*. Polish aviation law is rather restrictive regarding drones, as those devices’ commercial use requires special certificate which is awarded by the Civil Aviation Authority (CAA) of the Republic of Poland (Polish: Urząd Lotnictwa Cywilnego – ULC). Unfortunately, there is no certainty if all the users possess such certificates or are considering applying for them. This is important factor, as the number of certificates is not following the growing quantities of drones. As for now, there are plenty of advertisements on various types of networks offering business type services as commemorative photos and videos from the sky by employing drones. Next, it is necessary to consider what to do with other drones users who are declaring non-commercial exploitation as it is not easy to verify such the declarations. Is it not purposeful to

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<sup>19</sup> Based on: *Życie 75 ludzi na włosku przez zblakanego drona...*, Portal Dron.pl 29 October 2014, <http://info.dron.pl/zycie-75-ludzi-na-wlosku-przez-zblakanego-drona/> (accessed: 12 January 2017).

<sup>20</sup> *Quadcopter drone flew ‘too close’ to Southend-bound plane*, BBC News 27 October 2014, <http://www.bbc.com/news/uk-england-esssex-29785322> (accessed: 15 January 2017).

<sup>21</sup> *Ibidem*.

seriously approach such the topic before some negative consequences would happen? Are there any proper solutions to the issue? Especially as it is the real threat from one side but also infringement of the personal liberties and freedoms from the other. Generally, it is a real problem requiring reliable arrangements.

In Poland, similarly to other countries, many intrusions into airports' controlled zones have been noticed and as a consequence dangerous attempts to get as close as possible to manned aircraft. Many accidents have not been published by media to avoid panic and threat of using air mode of travelling. However, unauthorized intrusion into the airspace of the Warsaw Okęcie Airport initiated wide discussion as it was rather close to a serious incident. It happened on 20 July 2015 when a crew of an Embraer 195 aircraft, flying from Munich to Warsaw, noticed a flying object at a 700 meters altitude. Based on the crew assessment it was probably a drone located on the landing approach some 10 kilometres from the beginning of the airport runway. Therefore the aircraft with more than 20 passengers on board was forced to change its landing direction. Similar incident happened the same week in Łódź. Typical drone was observed in the vicinity of an airport and it caused a threat for a small aircraft performing training flight<sup>22</sup>. More serious accident occurred in Krakow when a flare was dropped from an unidentified vehicle, which landed among military aircraft located on the airport apron. It could be a warning regarding a possibility to conduct a terrorist attack using similar methods.

According to applicable and current regulations, it means within international law, all the civilian airships (manned and unmanned) are operating based on the Convention on International Civil Aviation (or the Chicago Convention) signed on December 7, 1944 in Chicago. The Convention is rather outdated and it has been transitory law which have to be updated. It is worth noting that the annexes to the Convention are kept up-to-date. However, the full integration of unmanned aerial vehicles and manned aircraft requires updating almost all annexes (18 of 19). The International Civil Aviation Organization (ICAO) is recognizing that complexity of the challenges and has established a few deadlines:

- until 2018 – initial integration with air traffic in airspace, excluding designated areas;
- until 2028 – full integration, allowing creation of full picture of all the operations within airspace; all the unmanned platforms will be visible for air traffic controllers and it will be possible to communicate with them.

The European Commission (EC) is currently working on a draft of law regulations regarding exploitation of UA by civilian persons. The main objective of such the regulation is to develop cohesive system of safety certificates for unmanned platforms. The new instructions will cover both data transfer channels to remotely control such the unmanned platforms and also the dilemmas of protecting privacy of data collected by unmanned systems. Is expected that Commission finishes the activities related to integration of RPAS in European airspace up to 2028. In this timeframe, besides the evolution of technical and operational rules, which will lead to alleviation of restrictions for operations of RPAS in European airspace, together mixed with manned aviation, following the same air traffic management procedures and ensuring the same level of safety and security. Furthermore, in the future, after year of 2028, the operators RPAS, based on common rules and mutual recognition that roles by the states, could fly cross border operations intra EU, avoiding the

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<sup>22</sup> Based on: *Kolejny dron w pobliżu lotniska? Tym razem w Łodzi*, TVN 24, 23 July 2015, <http://www.tvn24.pl/lodz,69/kolejny-dron-w-pobliżu-lotniska-tym-razem-w-lodzi,562579.html> (accessed: 12 January 2017).

administrative burden. Similarly acts the European Defence Agency, which conducts highly advanced research in relation to the future of unmanned platforms; however the focus is mainly on developing unified rules of using military drones when conducting missions within civil owned airspace. In the similar way is acting EASA. That institution currently (since 2016) works on establishing common security principles for all RAPS, without dividing on commercial and no - commercial.

In Poland, analogously to many other nations, comprehensive regulations for unmanned platforms flights have not been established yet. The first Polish laws regarding UAVs have been included in the Act from 3 July 2002 titled the Aviation Law Act published in the Journal of Laws of 2002, pos. 933, 951 and 1544 and the 2013 pos. 134 (Polish: ustawa z dnia 3 lipca 2002 r. Prawo lotnicze, Dz.U. z 2012 r., poz. 933 ze zm.)<sup>23</sup> with further amendments. A revised set of regulations in Poland was adopted in on 30 June 2011 and it entered into force on 19 September 2011 allowing use of unmanned systems only when meeting some requirements including equipment of systems and also qualification of personnel. Moreover, „according to the article 126 of Polish Aviation Act each UA operation in controlled airspace is possible after receiving the permission from the President of the Civil Aviation Office”<sup>24</sup>. More detailed arrangements for UAV were created in 2013 and updating in the follow-on amendments as well as the regulations for the implemented Act. The regulations are allowing conducting UAVs flights but some criteria must be fulfilled:

- It is recreational/sport flight in character;
- A flight is performed within uncontrolled airspace<sup>25</sup>;
- A flight is conducted within eye sight of an operator;
- possible destruction by state services in the event of suspected unauthorized use against persons or critical infrastructure (Article 126 to that act);
- the total weight of a UAV, including all equipment, must be below 25 kilograms.

A drone flight within a controlled area or sphere of an airfield (*Controlled Traffic Region* – CTR or *Terminal Manoeuvring Area* – TMA) is possible, however only if that drone will strictly follow exactly the same rules as other airships. It is especially linked with standard equipment (navigation devices, communication assets allowing movement and control) analogous to manned aircraft operating based on one of two sets of regulations governing all aspects of civil aviation aircraft operations, namely IFR (Instrument Flight Rules) or VFR (Visual Flight Rules). In the case the flight is controlled without visual control from ground using FPV (First Person View) equipment its rules are the same as for other air objects lying within IFR/VFR regimes. It means that UAV must be equipped into navigation and communication tools (transported, radio communication) and the flight must be con-

<sup>23</sup> Available in Polish language: *Obwieszczenie Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 22 maja 2012 r. w sprawie ogłoszenia jednolitego tekstu ustawy – Prawo lotnicze*, Journal of Laws of the Republic of Poland, Warsaw 16 August 2012, <http://www.dziennikustaw.gov.pl/DU/2012/933> (accessed: 19 March 2017).

<sup>24</sup> See in details in: M. Polkowska, *Latest National Regulations on Unmanned Aircraft Systems in Military and Civil Aviation in Poland*, Polish Civil Aviation Authority, published in ESPI Perspectives No. 60, May 2012, p. 1-4.

<sup>25</sup> Polish classified airspace is divided into: controlled airspace – Class C (from FL095 – FL660) in which flight control assistance, emergency and information services are provided and uncontrolled airspace Class G (from GND – FL095) in which emergency and information services are provided but excluding CTR, TMA, MCTR and MTMA.

ducted based on previously pre-planned route. It is important to notice, that if the flight is commercial in character, an appropriate *Unmanned Aerial Vehicle Operator* (UAVO) certificate have to be obtained from the Polish Civil Aviation Authority<sup>26</sup>. In other words, very popular FPV flights, being the most excited for pilots, are to be operated only in designated zones. It could be conducted only when the Polish Air Navigation Services Agency (Polish: Polska Agencja Żeglugi Powietrznej – PAŻP), based on application of a person concerned, designates a special *Exercise Area* (EA) for flights following the Instrument Flight Rules. Utilization of UAVs caused many experiences allowing their upgrade for better synchronization, enhanced capabilities, specialization, resistance for unauthorized control etc.<sup>27</sup>. This is important as there are new solutions to support such the modifications to have better characteristics of UAVs and supplemented by better software and skills of operators<sup>28</sup>. It is linked with their endurance and constant readiness to act in short notice<sup>29</sup>. According to Maryann Lawlor it is possible that “autonomous, networked and integrated robots may be the norm rather the exception by 2025”<sup>30</sup>.

## 5. CONCLUSIONS

The trend to use more UA for private and commercial purposes is in constant raise and this is an issue to be faced by agencies responsible for air traffic. The new technologies are offering more advanced solutions and now a drone or UA is available for average person to be used of variety of purposes. The desire to limit is not to be successful requiring rather creation of tools to ‘civilize’ and legalize those emerging capabilities. The air accidents involving UA are asking for decisive and purposeful steps to merge that group of air space users into overall system. If it will not happen more hazards will happen especially among radical elements of societies having new ‘tools’ to play with. It should not be even excluded that UA will be armed by amateur “pilots” to conduct air combat and to attack ground targets similar to military UCAVs. The desire to challenge manned aircraft or utilization by extremists could be unavoidable. Further development and functioning of unnamed aviation will be strictly dependent on properly structured law regulations. Nevertheless, the legislation effort should take into consideration both small and large size flying platforms as the latter are slowly dominating civilian market. The law must include such the aspects as provision of services, licences for operators, technical arrangements, and, what is the most critical, also the rules of flights. In the future also such the aspects as flights out of designated zones, full integration with other users of airspace and complete compatibility with aviation law must be distinguished.

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<sup>26</sup> UAVO certificate is a license proving a drone pilot qualification permitting operating such the devices for commercial purposes – other than sport of recreational reasons.

<sup>27</sup> L. Haulman, U.S. *Unmanned Aerial Vehicles in Combat, 1991-2003*, Air Force Historical Research Agency, Maxwell Air Force Base 9 June 2003, p. 16.

<sup>28</sup> K.P. Valavanis et al., *Unmanned Aircraft System*, ed. Springer, Philadelphia 2009, p. 184.

<sup>29</sup> N. Friedman, *Unmanned Combat Air Systems*, Naval Institute Press, Annapolis 2010, p. 3, annex II p. 69–248.

<sup>30</sup> M. Lawlor, *Robotics Concepts Take Shape*, The Armed Forces Communications and Electronics Association (AFCEA), Fairfax 2003, <http://www.afcea.org/content/?q=robotics-concepts-take-shape> (accessed: 12 March 2017).

At the same time, it is necessary to remember that unmanned flights are requiring specifically adjusted regulations as there is no need to implement all the rules concerning manned flights. It is especially true in the case of small flying objects used for recreational purposes. The detailed consideration should be conducted e.g. in relation to Article 126 of the Aviation Law, mentioned before, which is the foundation for unmanned flights within Polish airspace. Therefore, there is an urgent need to distinguish law definition of such the flying object and it should allow precise distinction between a 'toy' and professional equipment. Such the definition must be profoundly thought as it will have long-term consequences and will influence future regulations and also the rules of unmanned platforms integration with air traffic. Moreover, there is no need to cumulate all the traffic within controlled airspace as it could cause it to be 'overcrowded' and dangerous. Another aspect in the need to do deep research regarding protection of citizens' privacy and utilization of UA by state services as: police, fire brigade, border services, etc. Taking into consideration the complexity of the problem the regulations will be the first attempt to formalize civilian exploitation of UA, and although some gaps could be expected, it could be good and reasonable step forward for further legislative efforts. Civilian drones, even if it will not be fully assembled ones, are not necessarily intruders in the Polish airspace when conduction their missions as long as the law will precisely define what is and what is not allowed. This is the direction toward which the aviation law should aspire.

## REFERENCES

1. Frew E., Brown T., *Networking Issues for Small Unmanned Aircraft Systems* [in:] K. Valavanis, P. Oh, L. Piegł (eds.) *Unmanned Aircraft Systems, International Symposium On Unmanned Aerial Vehicles, UAV'08*, Springer Science & Business Media 2008.
2. Friedman N., *Unmanned Combat Air Systems*, Naval Institute Press, Annapolis 2010.
3. Gusterson H., *Drone. Remote Control Warfare*, the MIT Press, Massachusetts 2016.
4. Haulman L., *U.S. Unmanned Aerial Vehicles in Combat, 1991–2003*, Air Force Historical Research Agency, Maxwell Air Force Base 9 June 2003.
5. Hing J., Oh P., *Development of Unmanned Aerial Vehicle Piloting System with Integrated Motion Cueing for Training and Pilot Evaluation* [in:] K. Valavanis, P. Oh, L. Piegł (eds.) *Unmanned Aircraft Systems, International Symposium On Unmanned Aerial Vehicles, UAV'08*, Springer Science & Business Media 2008.
6. Marshall D., *U.S. Aviation Regulatory System* [in:] D. Marshall et al. (eds.), *Introduction to Unmanned Aircraft Systems*, CRC Press Boca Raton 2011.
7. Pardesi M., *Unmanned aerial vehicle: missions, challenges, and strategic implications for small and medium powers* [in:] B. Loo (ed.), *Military Transformation and Strategy. Revolutions in Military Affairs and Small States*, published by Routledge, New York 2009.
8. Polkowska M., *Latest National Regulations on Unmanned Aircraft Systems in Military and Civil Aviation in Poland*, Polish Civil Aviation Authority, published in ESPI Perspectives No. 60, May 2012.
9. Valavanis K.P. et al., *Unmanned Aircraft System*, Springer Publishing, Philadelphia 2009.

**INTERNET SOURCES**

1. Cwojdzński L., *Zadania wykonywane przez systemy platform bezzałogowych i powody ich stosowania*, Program „Pięć żywiołów. Wolność – informacja – bezpieczeństwo”, 2014, <http://www.5zywiolow.pl/wp-content/uploads/2014/02/zasady-uzycia-uav-leszek-cwojdzinski.pdf> (accessed: 25 January 2017).
2. Eagle MALE System Medium Altitude Long Endurance UAV, Defense Update, as of 9 December 2006, <http://defense-update.com/products/e/eagle-UAV.htm> (accessed: 30 January 2017).
3. Global Hawk, Website Northrop Grumman Corporation, <http://www.northropgrumman.com/capabilities/globalhawk/Pages/default.aspx> (accessed: 26 January 2017).
4. Lawlor M., *Robotics Concepts Take Shape*, The Armed Forces Communications and Electronics Association (AFCEA), Fairfax 2003, <http://www.afcea.org/content/?q=robotics-concepts-take-shape> (accessed: 12 March 2017).
5. Obwieszczenie Marszałka Sejmu RP z dnia 22 maja 2012 r. w sprawie ogłoszenia jednolitego tekstu ustawy – Prawo lotnicze, Journal of Laws of the Republic of Poland Warsaw 16 August 2012, <http://www.dziennikustaw.gov.pl/DU/2012/933> (accessed: 19 March 2017).
6. Olshan J., *Quiet Air Hero is Captain America*, New York Post 17 January 2009, <http://nypost.com/2009/01/17/quiet-air-hero-is-captain-america/> (accessed: 12 March 2017).
7. Paganini P., *Hacking Drones ... Overview of the Main Threats*, General Security 4 June 2013, <http://resources.infosecinstitute.com/hacking-drones-overview-of-the-main-threats/> (accessed: 22 February 2017).
8. *Quadcopter drone flew 'too close' to Southend-bound plane*, BBC News 27 October 2014, <http://www.bbc.com/news/uk-england-essex-29785322> (accessed: 15 January 2017).
9. Simonides J., *Prawnomiędzynarodowe problemy użycia dronów w walce z terroryzmem. Debaty i kontrowersje* (Legal and international problems of using drones to fight terrorism. Debates and controversies), Bellona Quarterly No 4, Warsaw 2014.
10. The Home Page of the UK Airprox Board (UKAB) Website available at: <http://www.airproxboard.org.uk/>
11. *Życie 75 ludzi na włosku przez zblakanego drona...*, Portal Dron.pl 29 October 2014, Portal <http://info.dron.pl/zycie-75-ludzi-na-wlosku-przez-zblakanego-drona/> (accessed: 12 January 2017).

**BEZZAŁOGOWE STATKI POWIETRZNE JAKO ROSNĄCE ZAGROŻENIE  
BEZPIECZEŃSTWA W LOTNICTWIE**

Systematycznie rosnące wykorzystanie bezzałogowych statków powietrznych tworzy nowe obszary zagrożenia dla ruchu lotniczego, takie jak niebezpieczne zbliżanie się do załogowych statków powietrznych podczas lotów z pasażerami na pokładzie. Takie sytuacje wielokrotnie obserwowano nie tylko w Polsce, ale także w przestrzeni powietrznej innych krajów. Powodem tego jest, według autora, przede wszystkim powszechna dostępność różnych typów dronów, a także brak pełnych przepisów prawnych. Autor w tym artykule przedstawia rosnące zagrożenia, wynikające z nieuprawnionego użycia bezzałogowych statków powietrznych w przestrzeni powietrznej, do innych rodzajów lotnictwa (w szczególności samolotów pasażerskich) w pobliżu lotnisk. Niezidentyfikowane drony pojawiające się obok samolotów pasażerskich, podczas podejścia do lądowania, a także lądowanie tych platform na terenach elektrowni jądrowych, jednostek wojskowych, a nawet na placu wewnętrznym Białego

Domu, dziś nie są czymś nadzwyczajnym. Dlatego drony są tak dużym wyzwaniem. Ich bezprawne wykorzystanie może zagrozić bezpieczeństwu ruchu lotniczego lub może być wykorzystywane do przeprowadzania ataków terrorystycznych, sabotażu, w tym działań przeciwko krytycznej infrastrukturze lub naruszania prywatności ludzi. Nowa sytuacja stwarza naukową potrzebę kompleksowej analizy problemów. Wiele aspektów przedstawionych w artykule może przyczynić się do lepszego zrozumienia nowych wyzwań, a także może być pomocne w dalszych badaniach w tym obszarze. Jest to zasadniczy cel prezentowanego artykułu.

**Słowa kluczowe:** bezzałogowe statki powietrzne, bezpieczeństwo ruchu lotniczego, zagrożenia bezpieczeństwa lotniczego, prawo lotnicze.

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