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Faculty of Economics and Administration

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Content

Prologue

Dear Colleagues,

we are presenting you a reviewed proceedings from the 12th International Scientific Conference 'Public Administration 2018', organized by the Faculty of Economics and Administration of the University of Pardubice every two years. The importance of the conference is underlined by the fact that it is organized in cooperation with the Regional Authority of the Pardubice Region, the statutory city of Pardubice and under the auspices of the Dean of the Faculty of Economics and Administration of the University of Pardubice.

This year, the Public Administration 2018 conference was held in parallel cooperation with conference 'Modern Public Administration' organized by the Ministry of the Interior of the Czech Republic. Both conferences connected various experts in individual areas of public administration to discuss practical issues and find the solutions in line with the theoretical knowledge background. The conferences have enabled knowledge transfer from academia to practice, which is, among other things, a significant contribution of all academic meetings.

Many dozens of experts from the Czech Republic as well as from the Slovak Republic and other foreign guests were attended this year of our conference 'Public Administration 2018'. The expert guarantee of the conference was provided by the Conference Research Committee, which brought together experts from many European countries, as well as Japan.

All actively presented papers at the conference were subjected to a review procedure. First, the submitted papers were reviewed internally by the Organizing Committee in terms of adherence to formal requirements, then the members of the Conference Research Committee consulted the papers from the point of view of topic compliance, and blind reviews were made by leading experts in the conference topics. Positively reviewed papers are part of this Proceeding. This is a summary of the scientific and research activities realized in many reputable workplaces from different countries.

I believe that the importance of the International Scientific Conference 'Public Administration 2018' will build on many previous successful years, will offer interesting papers to participants and other interested parties about the results of scientific research in the public sector and public administration and will contribute to the development of public administration.

Pardubice, 10th July 2018

Assoc. Prof. Romana Provazníková, Ph.D.
Chairwoman
Public Administration 2018 Conference Research Committee

SOCIAL EFFECTIVENESS OF THE CZECH PUBLIC ADMINISTRATION

Marie Bohatá, Anna Putnová, Andrea Cebáková, Martina Rašticová, Monika Bédiová

Abstract: *The purpose of this paper is to present the methodology for assessing social effectiveness of institutions executing public policies and discuss its first results. This methodology developed within a research project[1] supported by the Technological Agency of the Czech Republic extends the conventional paradigm of measuring efficiency by including social elements, opinions of different social groups, integrating different social preferences and by assessing performance against social goals. It reflects findings of empirical research conducted within selected public administration bodies (ministries and agencies), as well as Czech citizens. Both qualitative and quantitative research in the form of semi-structured interviews, focus group discussions, and a survey were used. After the presentation of the methodology, some first results in selected areas are discussed, and conclusions formulated. As the methodology is rather extensive, the paper will focus mainly on, ethics and integrity.*

Keywords: *Public administration, good governance, ethics, efficiency, effectiveness, organisational culture.*

JEL Classification*: H11, H79, H83.*

Introduction

The public administration in the Czech Republic has been lagging behind the development of the private sector and the NGOs taken place after the political changes in 1989 and accelerated by the accession to the EU in 2004. The public service reform has only partly followed the principles of good governance (Sigma) defining what good governance entails in practice and outlining the main requirements the EU candidate countries had to fulfil.

The concept of 'good administration' has been progressively defined by EU countries and is included in the EU Charter of Fundamental Rights[2]. The notion of a 'European Administrative Space' set out in 1999 includes components such as reliability, predictability, accountability and transparency, as well as technical and managerial competence, organisational capacity, financial sustainability and citizen participation.

Although general good governance criteria are universal, these Principles are designed for countries that seek EU accession and receive EU assistance through the Instrument for Pre-accession Assistance (IPA). The acquis requirements, as well as other EU guidelines and instructions, are the core of the Principles in the areas where acquis is in place. In other areas, the Principles are derived from international standards and requirements, as well as good practices in EU Member States and/or Organisation for Economic Cooperation and Development (OECD) countries. As a minimum benchmark of good administration, countries should ensure compliance with these fundamental Principles.

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[1] Supported by the Technological Agency of the Czech Republic under No. TD0300258.

[2] Article 41. Right to good administration. 1. Every person has the right to have his or her affairs handled impartially, fairly and within a reasonable time by the Institutions, bodies and agencies of the Union. 2. This right includes: the right of every person to be heard, before any individual measure which would affect him or her adversely is taken; the right of every person to have access to his or her file, while respecting the legitimate interests of confidentiality and of professional and business secrecy; the obligation of the administration to give reasons for its decisions. OECD (1999)

In each country, the Government's attention to a given Principle may vary depending on the governance structure, the administrative culture, the key country-specific challenges and the previous reform record.

1 Formulation of the problem

According to the most recent OECD analysis (OECD, 2016) promoting a more effective public sector is one of the crucial preconditions for achieving sustainable and inclusive growth. The current situation has been characterised among others by wasted public procurement and low value and volatility of investment, lacking coordination across different parts of the government and between levels of government and insufficient availability of information about policy outcomes, making broad priorities difficult to achieve. Key recommendation to remedy the main problems include increased auditing, designation of responsibility for the coordination and prioritisation of investments on the basis of highest social return and use and publication of standardised performance indicators for publicly funded activities at all levels of the government.

Spending on public administration is estimated at 75% of the average OECD country (OECD, 2016) and the public sector performance has been reduced by a relatively high level of corruption, over- regulation and high levels of turnover of personnel within the civil service leading to discontinuities in policy and loss of knowledge. Thus, enhancing the effectiveness of public sector has become imperative and for that purpose the government adopted in 2014 a Strategic Framework of the Development of Public Administration in the Czech Republic (Ministry of Interior, 2014).

The aforementioned deterioration of the public sector can be attributed to a lacking commitment of Czech politicians to implement the necessary public service reform in line with the principles of good governance. Despite promises made during negotiations of the EU membership, the civil service act aiming at de-politicisation, stabilisation and professionalization of the civil service was adopted only in November 2014 and entered into force in January 2015 (Civil service Act No, 2014). Key measures include appointments and promotions opened to competition under specified procedures, linking remuneration and performance through an annual performance appraisal, codifying rights and responsibilities and facilitating whistleblowing.

2 Methodology

The methodology for assessing social effectiveness of institutions executing public policies aims to increase the effectiveness of public policies at central, regional, and local levels. Applying the methodology should make it possible to identify good practices, provide motivation for enhancing quality of governance as well as to cultivate public administration institutions. It will also help implement the law on civil service.

2.1 Concept of the social effectiveness of public administration

Reflecting the modern trends in governance, the concept of social effectiveness used in our project lays particular emphasis on public interest, openness, participation, and integrity. Even if it is not intended to cover all the issues of public administration assessment, it is a contribution in terms of public administration affecting the widely conceived social environment.

Social effectiveness of public administration is an original concept that we define based on the findings of literature on effectiveness in a wider context. We proceed on the assumption that public sector is socially effective if the stability of society is maintained, its cultural and moral values are upheld and reproduced, and the private sector works efficiently. By social effectiveness of the public administration we mean a comprehensive concept consisting of

such components as coherent policy making focusing on societal needs, coordination of conflicting goals, empowerment, motivation and satisfaction of public servants and participation of citizens and their satisfaction with the public administration. We view social effectiveness as expediency, efficiency of public administration and its impacts on both the internal and external constituents, that is, on different stakeholders. This is a dynamic concept requiring permanent reflexion and acceptance of shared values. Compared to the cost efficiency, this approach to public administration execution is difficult to quantify. While the traditional concept of effectiveness is cost-effective, social effectiveness reflects a result effective approach. This concept has been inspired by the principles of good governance, the public value philosophy, and social and ethical audit. It also incorporates the open-government practices, which alters the relationship between public servants and citizens as well as other stakeholders and whose objective is an inclusive approach to public policies and creation of reciprocal trust among all stakeholders.

2.2 Main attributes of the methodology

At the beginning of the project, we laid down the requirements of the methodology to be achieved:

- self-assessing nature,
- usage for internal needs aiming at the creation of a self-learning organisation,
- identification of strengths and weaknesses,
- modular character,
- possibility of usage at different organisational levels, with minor changes to be used for both state administration and self-government,
- simplicity, clarity, and user-friendliness,
- provision of immediate feedback,
- comparability of results over time and across organisations/organisational levels (benchmarking and benchlearning against different organisational levels or other organisations possible if desired),
- inspirational character and guidance provided for improvement measures suggestion (standards to be set high but a way shown how to achieve them),
- a repository of good practices.

2.3 Areas assessed

In terms of the basic ideas, our approach to assessing the social effectiveness of institutions executing public policies is close to quality management, particularly the CAF model. It is, therefore, not surprising that the blocks on which we focus are included in the methodological directive of the Ministry of the Interior to quality management in public administration (September 2017). Our approach, however, also includes ethics and integrity as well as relationships to external stakeholders, which we regard as key areas in terms of social effectiveness. Thus, the thematic fields assessed include:

- strategic management and coordination,
- operational management and performance,
- external communication,
- ethics and integrity,

- HR policy and social climate.

2.4 Approach to assessment

The methodology uses a questionnaire enquiry covering the above areas. Except for a few yes-no questions, four possible answers are offered: yes; rather yes; rather no; no. Based on a point-rating system devised using the know-how of the solution-providing team, the conclusions of both qualitative and quantitative research carried out, recommendations by international organisations and recognised good practices, and with respect to the importance of each question, the percentage has been evaluated achieved by each organisation. The subjects of the assessment are the above mentioned individual areas. Based on the resulting percentages, the results are commented on with ways of improvement suggested using the below grading:

- excellent results (90 - 100 %),
- very good results (75 - 89 %),
- good results (50 - 74 %),
- a great deal to be improved (25 - 49 %),
- unsatisfactory results (0 - 24 %).

2.5 Ethics and integrity section

The methodology of assessing the social effectiveness is rather extensive. Therefore, only one thematic area to illustrate the function of the methodology - ethics and integrity - is presented.

We have chosen 30 questions to assess ethics and integrity in public administration. The questions addressing all issues related to ethical management and transparency in office reflect results of the abovementioned empirical research and y other relevant studies and literature, such as Seknička, Putnová (2016).

The aim was for the enquiry to prove the current state in the institution as well as to bring inspiration and to assist in developing ambitious improvement actions. We are fully aware of the fact that some of the processes and instruments have not yet been fully accepted in the Czech environment and implemented on a larger scale (for example lobbying, ethics compliance department). We are convinced that it is important for such measures to be considered to enhance the ethical climate in the Czech public administration.

Tab. 1: Ethics and integrity – questionnaire

Question		Yes	No	Rather Yes	Rather No
Has your office an ethical code or another instrument of ethical management in addition to the service regulation by the minister of the interior for civil service of December 2014, which stipulates the ethical rules for civil servants? (For self-administration, a model code according to MI.)					
If so, have the employees participated in its (their) creation?					
Has your office any other (more detailed) internal regulation /rules for:	conflict of interest?				
	corruption?				
	whistleblowing?				

Is there in your office a specialized department/position concerned with the interpretation of the code and problems with its observation?				
Does your office monitor the observation of the ethical code on a regular basis?				
In the event of a violation of the code, does an ethical commission or a similar body such as the ombudsman (not just the next senior worker) deal with this?				
Does the top management deal with ethical problems in your office and their possible prevention?				
Does the top management of your office have a clear idea of the efficiency of the instruments employed (ethical code)?				
Does your office keep track of employees being acquainted with the code?				
Have the existing employees of your office undergone a training explaining the code and its function?				
Do the new employees of your office receive a training explaining the code and its function?				
Does your office regard the code as an instrument whose efficiency needs to be monitored and whose content must be updated if necessary?				
Has your office designed an anti-corruption policy in addition to the ethical code issued by the service regulation of the deputy minister of the interior in charge of civil service?				
Are there in your office clear internal procedures to deal with cases of suspected corruption?				
Is there a department in your office that monitors the application of anticorruption policy?				
Has your office adopted a pro-active anticorruption approach (training, assigning sensitive positions on a rotation basis)?				
Has your office adopted a clash-of-interests policy in addition to the ethical code issued by the service regulation of the deputy minister of the interior in charge of civil service?				
If so, does it contain:	procedures to identify potential conflicts of interest?			
	to control situations of conflict of interest?			
	other procedures?			
If not, is your office going to design such a policy?				
Does your office apply any restrictions on employing persons with lobbyist history, participating in negotiations on public contracts, being your subcontractors?				
Does your office apply any restrictions on its employees quitting and being employed in the private sector where they can profit from insider information, which may lead to violating equal conditions?				
Has your office created a mechanism for reporting on detected unlawful/unethical activity in your organization?				

If so:	does it include a protection of a whistle-blower?				
	is a feedback to a whistle-blower provided?				
If not, is your office going to design such mechanism?					
Has your office created a lobbying policy?					
Is lobbying in your office sufficiently transparent?					
If not, is your office going to adopt measures to increase transparency?					
Is your office trying to prevent lobbyists becoming members of advisory groups of your office?					
Has your office developed mechanisms for restricting risks of lobbying (corruption, inadequate influence) which it applies to consultations with stakeholders?					
Has your office introduced a CSR policy?					
Is the top management of your office concerned with the evaluation of such policy?					

Source: (own processing)

3 Discussion

In 2017 the methodology was piloted in five bodies of the Czech public administration. During focus group discussions other answers to some questions were obtained. From this body of knowledge, it follows that there are issues of general character that need to be tackled at the general level and issues that should be dealt with by individual organizations of public administration.

3.1 Systemic issues

The Czech public administration operates in a complicated and even confusing legal framework. The major problem stems from a very high number of legislative acts which are being permanently amended, and this leads to a lack of clarity and a low stability of legal acts. Even for the layers it is difficult to stay up-to-date.

Another weakness is linked to a missing mission of public administration and a clear definition of priorities in the European context. In this situation it is not surprising that strategic planning and coordination are poor.

As an example, the public service act no. 234/2014 Coll. can be shown. The need to legally define civil service, depoliticizing and professionalizing it has been around for almost 20 years now. Since the beginning of the millennium, the law makers have been trying to enact such a legal regulation, with such efforts being finally successful in 2002 in the form of an amendment to the act, however, it took another ten years for this amendment to come into force. In 2014 a new act became law to come into force on 1st January 2015. Since this very moment there have been talks about the necessity of its amendment. (Vejsada, Erényi, 2015).

Despite the adoption of the Civil service act which was supposed to depoliticise the administration, a mixed model, i.e. a combination of politics and administration still exists. As a result, esp. at the regional level politics penetrate into the professional administrative function.

3.2 Internal issues

While systemic issues are beyond the reach of individual public administration bodies, internal issues should be considered as their own sphere of responsibility. The following weaknesses have been identified as the most significant ones and tackling them will have major positive effects on social effectiveness of public administration.

- Quality management initiatives are scattered, driven by individuals without wider organisational backing.
- The interest in performance measurement is low.
- Only some entities have clearly defined their stakeholders and developed appropriate communication channels and disclosure policies.
- The culture of accountability is not properly developed, there are no clear foundations for disclosure, formalistic attitudes prevail.
- Empowerment of public officials is low.
- Customer satisfaction surveys are very rare and currently not considered as an important instrument leading to potential public value enhancement.
- Mechanisms of regular involvement of citizens are lacking, only limited and ad hoc consultations exist.
- Ethics is predominantly understood as compliance and not as a proactive approach motivating decisions within a given space of individual responsibility.
- Risk management is rather developed and anti-corruption measures together with whistleblowing are considered very important in this context. Anti-corruption initiatives are coordinated at the level of the government.
- The civil service act is gradually implemented and all management posts filled-in by an open competition. The interest of high skilled and experienced external candidates as well as university leavers is very limited (a low level of remuneration compared to the private sector, a relatively long probation period, a reluctance to accept the new public service conditions).

Conclusion

We conclude our analysis of the abovementioned findings by presenting recommendations for improvements. These recommendations reflect the existing weaknesses and are inspired by internationally recognized best practices in public administration.

What is needed – systemic issues:

- The legal framework should be simplified, clarified and stabilized.
- A clear mission of public administration and a definition of priorities in the European context should be developed.
- A penetration of politics into professional administrative functions should be abolished.
- Strategic planning and coordination should be enhanced, sectoral silos should be overcome, philosophy of a whole-of government should be adopted.

What is needed – internal issues:

- Stakeholders including citizens should be engaged on a regular basis and the problem of representativeness should be tackled.

- Empowerment of public officials should be enhanced. Discretional powers and the ways how these powers can be used should be made clear and understood.
- The implementation of the civil service act requires a deep change in the culture and its ethical foundations.
- A service culture also needs to be developed.
- Improving of confidence of public administration.
- Setting strategic line for transparency in the public institutions.

In the area of ethics and integrity some more specific recommendations should be mentioned. As the major shortcoming is a missing assessment of the existing ethical climate and processes/tools in place, we strongly recommend social and ethical audits be implemented. Furthermore, ethical management and leadership should be enforced. For that purpose, sharing best practices including the development of ethics programmes would be a great help to public administration. Tackling the current and future challenges that the public administration faces requires well prepared and responsible leaders that can set examples.

'Exceptional personalities create and change institutions, both informal - standards, morals, conventions, and formal - organizations, thus laying the basic structures of civilization (given that they will be accepted by society and prove to be useful in the long-run).' Rychetník (2004).

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SOCIAL EFFECTIVENESS OF PUBLIC INSTITUTIONS THROUGH THE EYES OF CITIZENS

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Abstract: *Social effectiveness is a complex concept which encompasses such components as coherent policy making addressing public needs, coordination of conflicting goals, empowerment, motivation and satisfaction of public servants, creation of public value and participation and satisfaction of citizens with the public service outcomes. For the purpose of our research we define social effectiveness of public institutions as an attainment of desirable societal goals, as effectiveness of public institutions through the eyes of citizens. The aim of the paper is to analyse the public assessment of quality of selected public administration authorities, what is the approach of officers and what people experience when visiting the Czech authorities in terms of the good-governance principle, special attention is paid to the corruptive behaviour of officers. Respondents (405) from the Czech Republic, participating in a unique research, indicated their satisfaction with public institutions. Obtained data are processed through descriptive statistics and independent t-test was used to evaluate results. The envisaged survey of citizens' perceptions will address not only shortcomings but also positive features and recommendations from the general public. The following paper is a first study of a broader project mapping social effectiveness of public institutions.*

Keywords: *effectiveness, public administration, citizens, participation, satisfaction.*

JEL Classification: *H83.*

1 Introduction

1.1 Public value

From its beginning the policy sciences movement was concerned about the relationship between knowledge, policy-making and power. This issue was at the heart of the work of Harold Lasswell, a founding father of public policy as a field of study. Lasswell believed that democratisation was an ongoing proces and that the particular challenge facing modern democracies was how to ensure that policy-making could be informed by a new kind of interaction between knowledge producers and users (Torgerson, 1985).

Public value has emerged as an increasingly ubiquitous term in the politics and public administration literature and has featured even more commonly in public sector improvement programmes. However, there remains some lack of clarity over what public value is, both as a theory and as a descriptor of specific public actions and programmes. Moore (1995) initially formulated the public value framework to help imbue public sector managers with a greater appreciation of the constraints and responsibilities within which they work. This in turn was intended as a basis for a more proactive and entrepreneurial approach to value creation. Moore's central proposition was that public resources should be used to increase value in a way which is analogous to value creation within private enterprise.

The public value approach putting the citizen at the centre – considering him/her not only as a client of public administration but also as an actor in democratic processes - replaces the New Public Management philosophy serving anticipated needs of public service clients and using a regime of targets and key performance indicators. The experience has shown that the targets are focused on internal management, audit and control questions that may be operationally useful but often have little resonance with the public. The public value model

stresses things which the public really value and reinstates the notion of citizenship which is missing in the target driven approaches to public service management (Hills, Sullivan, 2006).

In a broad understanding, open government trespasses mere transparency and accountability of representative institutions. It actually enriches representative democracy by the introduction of innovative forms of collaborative governance. While the pluralistic ethos of social and collaborative software is significant for the open government approach, it is – of course – by no means the only valid attempt to improve the relation between citizens and political authorities. Moore (1995) introduced the influential concept of Public Value. In a review of the literature on public value, Williams and Shearer (2011: 8) state that *'Moore's foregrounding of the citizen-state relationship resonates with those who are disillusioned with market-based models of public sector organization and delivery but reluctant to advocate a return to prior 'statist' models of administration'.* They refer to Kelly et al. (2002), who attempted to *'translate the public value framework into a blueprint for broader public sector improvement'* and Stoker (2006), who proposed public value *'as a framework for promotion of networked governance'*.

Steering toward public value is an emerging new management paradigm. In contrast to traditional public administration and new public management, it does not seek to confine politics but rather sees it as central to the management challenge. Its origins can in part be traced through the work of practitioner-oriented management writers concerned with getting officials to work more effectively with politicians and to develop a sense of a distinctive nonbusiness dimension to weigh in on which public services should be run (Goss, 2001; Moore, 1995; Ranson, Stewart, 1989; Smith, 2003).

The concept of public value does appear to have a decidedly context-dependent character.

As a result, public value management does not have the immediate sharpness about how to meet efficiency demands that is available to other paradigms. Efficiency has to be judged in terms of the broader goals of whether public value is being achieved. Furthermore, some claim that its exclusive reliance on closed networks and ambiguity about where ultimate responsibility for decisions rests create a major problem of accountability for public value management. Rhodes (2000: 77) states the problem of accountability with his native Yorkshire bluntness when he argues that networks '*substitute private government for public accountability*' and that '*accountability disappears in the interstices of the webs of institutions whichmake up governance*'. Add to this the argument that the resources necessary to buildnetworks represented by social capital (Putnam, 1995) are unevenly distributed (Maloney, Smith, Stoker, 2000), and it would appear that there is a fatal flaw in public value management from an equity perspective.

1.2 Good governance principle

There is no acquis communautaire in the public administration of the EU, but a consensus has established principles shared by Member States with different legal traditions and different systems of governance. These principles have been defined and refined through the jurisprudence of national courts and subsequently, the jurisprudence of the European Court of Justice. They encompass the rule of law principles of reliability, predictability, accountability and transparency on one hand, and also technical and managerial competence, organisational capacity and citizens' participation on the other hand (Principles for Public Administration, 2014).

Attention must also be paid to the office of ombudsman. An ombudsman is a government official appointed to protect the rights of individuals against acts of public officials at variance with the good governance principle[1].

[1] Section1 Par. 1 of Act no. 349/1999 Coll.

Thus, if a public authority acts at variance with this principle, the ombudsman can investigate complaints made by individuals against abuses or capricious acts of public administration officials. However, being not defined by law, good governance is just a term with various interpretations. As such, it was not a fully fledged legal rule and the ombudsman was there to give provide it with an official framework[2].

The European legislation taken as template[3], the ombudsman's document begins with stating that '*it is clear that these are informal principles underlying the ideal administration of public affairs based on the constitutional principles, general legal regulations, moral rules, as well as legitimate social expectations. Thus, the good governance principle denotes an act of public authority that, complying with the law in the first place, cannot be claimed to be capricious, biased, evasive, inefficient, procrastinating, or showing any other undesirable signs*[4]'. Guided by the above, the ombudsman made a list of ten principles to be applied by public administration, which may be viewed as a compendium of good governance (see also Černý, 2016):

1. Compliance with the law - An authority should act in compliance with the laws of the Czech Republic as a whole. Legal regulations should be applied while taking into account their relationships. If a legal regulation may be construed in several different ways, the authority should be guided by its purpose respecting the opinions of the higher authorities and the common judicial decisions.
2. Impartiality - In a particular situation, without a justified difference, everybody should be treated equally by any authority, which should be guided by reason. An official should get rid of all prejudice, preserving political and religious neutrality, not giving rise to any doubts as to his or her impartiality.
3. Timeliness - An authority should dispose of a petition within a reasonable time without unnecessary delay. Should the dealing with a complaint require more time than usual, the claimant should always be informed about this receiving the reasons for the delay and the expected date of the final decision.
4. Predictability - An authority should honour the legitimate expectations of citizens, making decisions compatible with those of similar cases in the past or dealt with by higher authorities. If, in a particular case, an unusual decision is made, this should be explicitly stated along with a justification of such a procedure.
5. Plausibility - An official should provide each person with reasonable information on the facts established and on his or her obligations to the authority on the progress of dealing with the complaint for the person to get a good understanding of the purpose and stages of proceeding to be able to exercise his or her rights.
6. Reasonability - An authority should only interfere with citizens' rights and justified interests to an extent that is necessary and if it is necessary to achieve the purpose of the proceeding. When exercising its power, an authority should treat a person with reason, taking into consideration its emergency situation.
7. Efficiency - An authority should make every effort to deal with a petition in a comprehensive way. If a department or organisation unit is not competent to deal with a petition it receives, it should pass this petition to the competent part of the authority informing the petitioner accordingly. If a petition is dealt with by several departments or organisational units of an authority or several authorities, these

[2] Černín, K. (2006). Principy dobré správy definované veřejným ochráncem práv. In: Hrabcová, Dana (ed.). Principy dobré správy. Brno: Masaryk University, p. 11.

[3] Particularly. (2007). The Recommendation Rec (7) of the Committee of Ministers at the level of European Council and European Code of Good Administrative Behaviour at the EU level.

[4] Good Governance Principles. (2006). Ombudsman [online]. © Ombudsman's Office. [Accessed: 1. 2. 2017].

should share information on the dealings coordinating their procedures. When dealing with a petition, each authority should be consistent in striving for an actual, not just formal solution. To this end, efficient steps should be taken to put the decisions made into practice with their effects subsequently monitored.

8. Accountability - An authority should not avoid dealing with a matter or making a decision in a case for which it is competent. If an authority makes a mistake, it should admit this clearly and explicitly, sending a written apology and immediately taking efficient corrective steps and, if appropriate, informing the person affected on the possibility of claiming a compensation for the incorrect administrative decision.
9. Openness - An authority should make it possible for citizens to inspect all official documents and make copies thereof. An authority should be consistent in document management making it possible to access each document.
10. Helpfulness - An official should be polite and respectful in dealing with citizens being fair in dealing with their colleagues. They should pay due attention to all petitions responding to all except the anonymous and recurring complaints. Within their competences, they should make every effort to help the complainants achieve their objectives. By no means must an official harm peoples' dignity knowing that public service is the ultimate goal of his or her office.

1.3 Corruption

Quality of democratic societies and their administrations is often assessed by the existence and extent of corruption generally defined as a misuse of power for private purposes. The multifaceted negative impact of corruption is well known and broadly analysed in the literature (Torcello, 2016).

The concept of political support assumes particular relevance in comparative institutional analysis because it has several consequences on the functioning and the legitimacy of democratic regimes. Easton (1965, 1975) distinguished between 'diffuse support' and 'specific support'. Whereas the former refers to the political community and the regime, the latter implies a citizens evaluation of the performance of the current political authorities. Satisfaction on how democracy works in a country and confidence in national government and other political institutions, such as the parliament, the legal system, and civil servants, have been usually considered indicators of specific support (Klingemann, 1999).

The detrimental effect of corruption on the structure of public expenditure is of particular relevance. Indeed, it has been argued by Mauro (1997), Tanzi (1998) and Delavallade (2006) that education expenditure is scaled down in countries with widespread corruption. Lowering the provision of education has a negative effect on future income, and reinforces economic inequality. The distortion in public spending implied by corruption has been the subject of several empirical studies but has not yet received any attention on the theoretical side. Corruption enhances the proportion not only of military spending (Gupta et al., 2000), but also of public services and order, fuel and energy, and cultural expenditure relative to education and health spending (Delavallade, 2006). In his influential paper, Mauro (1997) sketches a model based on Barro (1990) with different types of public spending; in his model, corruption acts as a proportional tax on the budget surplus, and does not distort the composition of public spending, contradicting to some extent his empirical results.

2 Methodology and Data

The aim of the paper is to analyse the public assessment of quality of selected public administration authorities, what is the approach of officers and what people experience when visiting the Czech authorities in terms of the good-governance principle, special attention is paid to the corruptive behaviour of officers. The target group was the respondents having

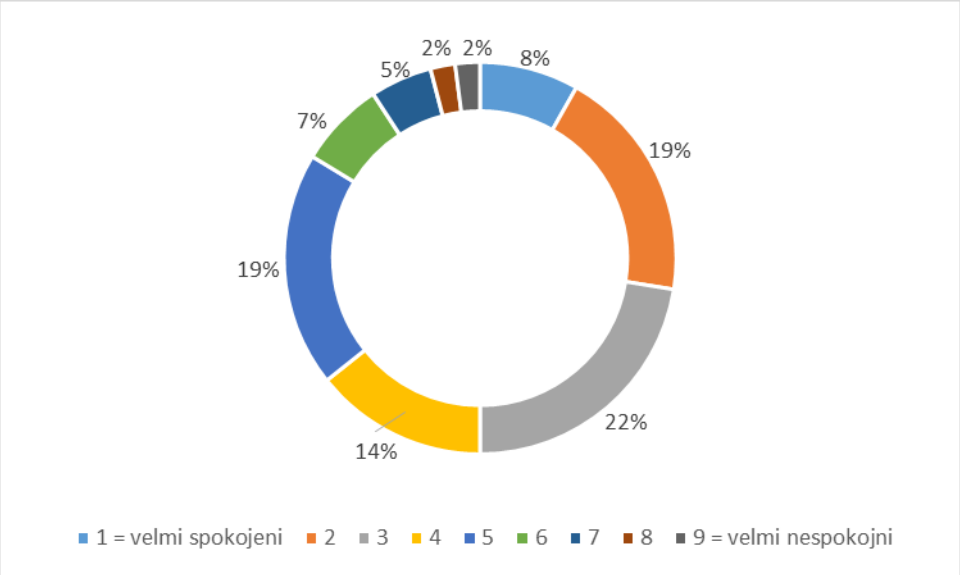
visited the selected authorities in the last two years. The sample was representative of the following categories: sex, age, region, size of town of residence. The quota selection involved 405 respondents. In order to solve the research task, the CAWI enquiry methodology was used. The survey is focused on finding of a subjective opinion, we worked with nominal characteristics. Their frequencies are in selected cases expressed by contingency tables, thanks to them, there are subsequently determined possible links of two verbal characteristics and in case of relevance for relationships, there was verified the power dependence based on Pearson´s contingency coefficient (P). The closer is the value to 1, the higher is the dependence. The cogency of the relationship of observed variables is determined by a comparison of an empirical coefficient called square contingency $\chi 2$ with the chosen significance level $p = 0.05$ (or more precisely $P = 0.01$). For the processing of acquired data there was used the software STATISTICA by StatSoft. The results were described by descriptive statistics. The research sample consists of 48% men and 52% women. The obtained data were divided into 4 age groups: 18 - 29 years (20%), 30 - 44 years (26%), 45 - 59 years (26%) and 60 years and more (28%).

3 Results

By the survey we tried to find how people are satisfied with the quality of public administration. 49 per cent of the respondents were satisfied or rather satisfied with 40 percent being neither satisfied nor unsatisfied and the remaining 11 percent being rather unsatisfied or not satisfied at all.

People aged 60+ are more satisfied with the public administration (Fig. 1); compared with other age brackets, as proved statistically (c2 (df 1) = 6.64, p = 0.009), people aged 60+ view public administration significantly better than other age groups. Public administration also receives better marks from university educated people or people seldom visiting public administration offices. Further analysis shows that people repeatedly experiencing corruption in public administration authorities, insolence of or discrimination by officers tend to assess the public administration quality worse. Three quarters of the respondents view public administration as service to the public.

Fig. 1: Assessment of the Czech public administration quality

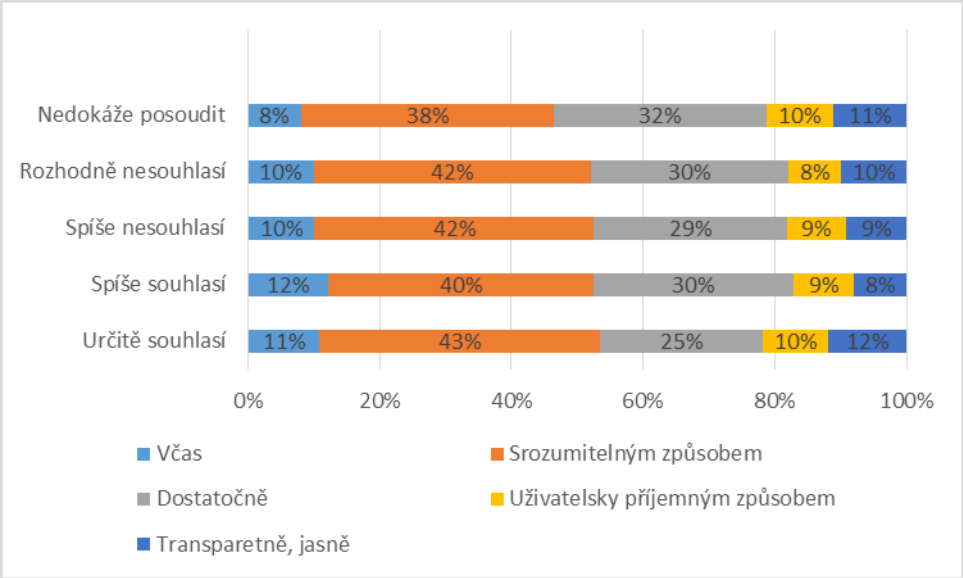


Source: Author's own data analysis

About one half of the people dealing with public administration authorities (Fig. 2) see as positive the way the authorities inform the public, in their opinion, the public is informed in time (54 %), clearly, and sufficiently (both 52 %). As unclear is seen the informing by young

people (younger than 30 years). Untimely informing is the subject of complaints more (52.4%) in people living in medium towns (with a population of 20 to 100 thousand) at a significance level of 1% (c2 (df 1) = 6.64, p = 0.009) than in those living in small towns or conurbations.

Fig. 2: Public informed by the authorities



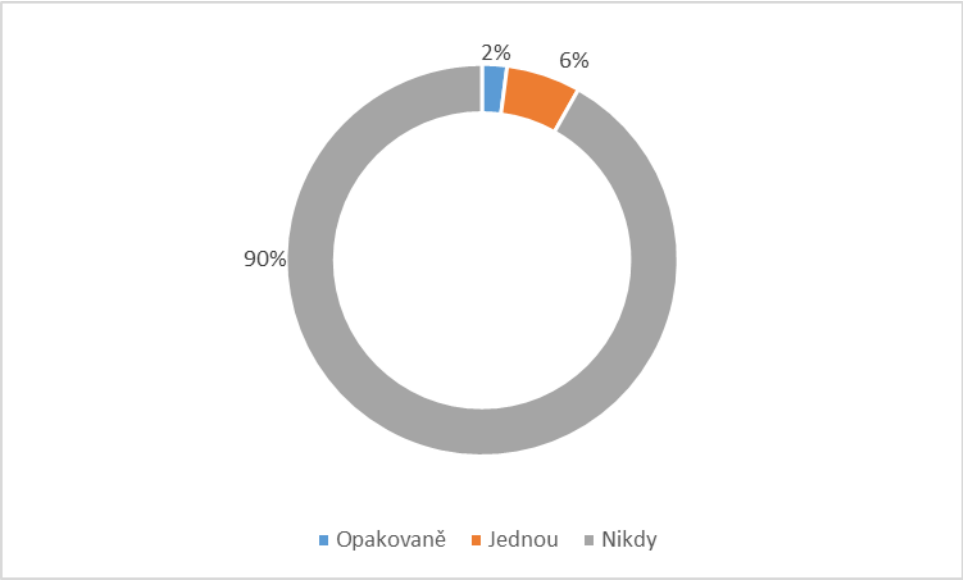
Source: Author's own data analysis

The survey was also concerned with corrupted authorities and discrimination by authorities as experienced by the public.

Almost one tenth (9%) of the public visiting the public administration authorities (Fig. 3) have experienced corruption by the authorities. This was most frequent in people aged 45 - 59 (11.5%), which, at a significance level of 5% (c2 (df 1) = 6.64, p = 0.05)), is more than in other age brackets.

If solicited a bribe, more than one third of the respondents pretended not to have heard the solicitation while in another third, the result was a blunt refusal. Almost one fifth of the petitioners accepted the offer of a quid-pro-quo. A detailed analysis yielded that, if an officer solicited a bribe from them, in six out of ten women, this resulted in a blunt refusal. Interesting results were discovered if the answers were analysed by the population size of the respondents' place of residence and by the frequency of their visits to authorities. According to these, if solicited a bribe, only people from smaller towns of with a population from 5 000 to 20 000 and those frequently visiting authorities did oblige.

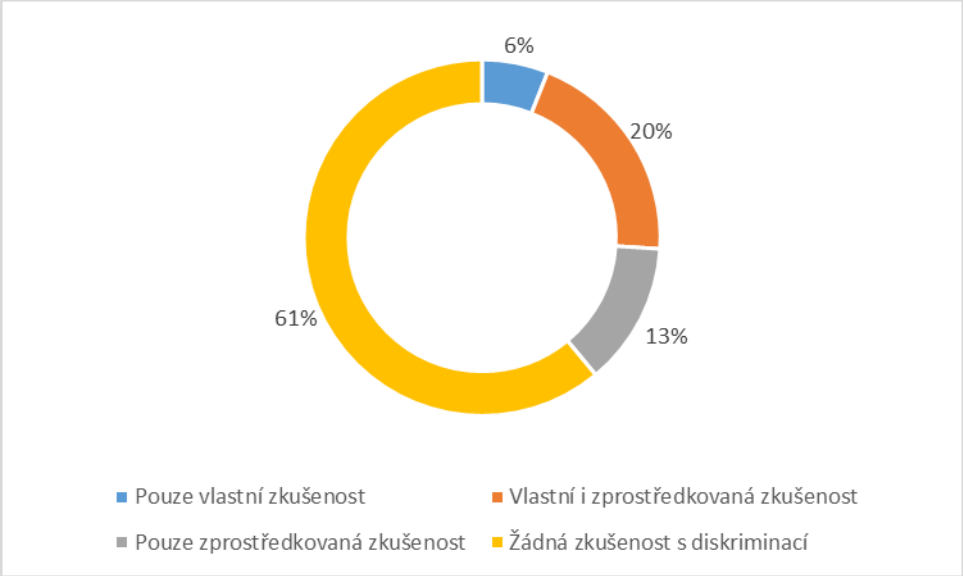
Fig. 3: Experience of corruption in administration



Source: Author's own data analysis

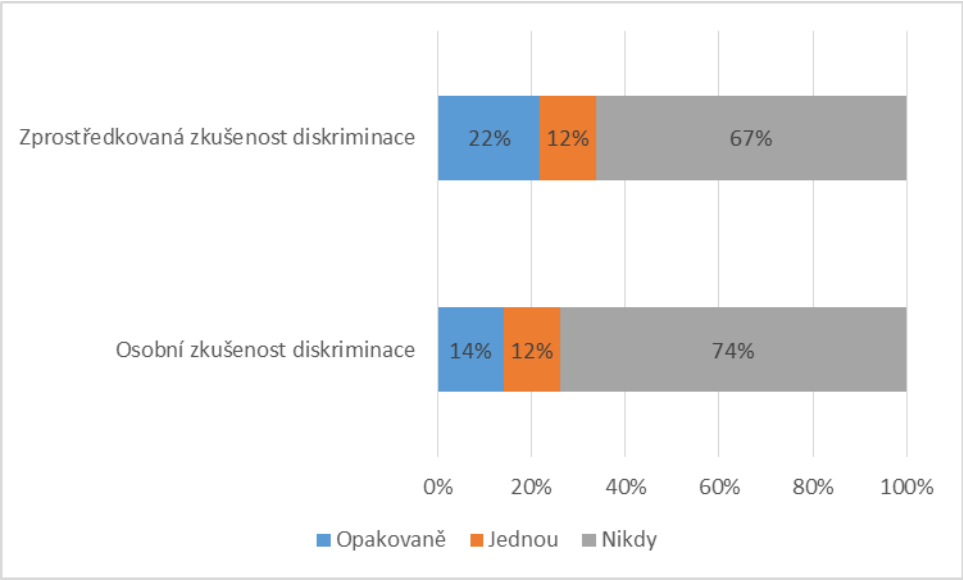
A fifth of the visitors have experienced discrimination with authorities directly and indirectly (Fig. 4 and 5). One quarter have experienced discrimination directly while one third indirectly. Six out of ten respondents have experienced no discrimination. Of the respondents who admitted experiencing discrimination in public administration directly or indirectly, 60.7% think that public administration is no public service. Also, respondents with previous discrimination experience have seen witnessed more (80%, at a significance level of 5% (c2 (df 1) = 6.64, p = 0.05) than those with no previous experience of discrimination by the public administration officers.

Fig. 4: Discrimination as experienced by public administration officers



Source: Author's own data analysis

Fig. 5: Discrimination as experienced by public administration officers



Source: Author's own data analysis

4 Discussion and conclusions

The present study analyses a survey on the quality of public administration assessed by the Czech citizens. The research being carried out with a representative sample, we can infer from it that the results obtained apply to the entire Czech population.

According to the survey, almost a half of the Czech citizens are satisfied or rather satisfied with the quality of public administration. The most satisfied group is people aged 60+ and university students. About 11% of Czech citizens, mostly those facing insolence, bribery of and/or discrimination by officers, are rather or very unsatisfied. It might be argued whether about half of the Czech population being satisfied was good or bad news. Nevertheless, further analyses have proved that there is still a great deal of leeway to improve the quality of public administration.

With respect to the principles of good governance, we enquired into the satisfaction of the Czech citizens with the way the public authorities work in terms of timeliness, sufficiency, transparency, clearness, and helpfulness. According to the survey, half of the Czech citizens (52% - 54% depending on the individual aspects) think that the information they receive from the public administration authorities is timely, sufficient, transparent, clear, and helpful. On the other hand, it is perceived as little comprehensible by people aged 30 and less and by those from middle-sized towns. Both findings being statistically significant, we recommend that a different form of communication should be used focused on the younger generation such as websites or online communication, to which this age group is accustomed. Special attention then should be paid to authorities in middle-sized communities. In contrast to the small communities where information is mostly accessed formally, here the officers are in regular contact with the citizens as well as in contrast to the large towns where access to information from authorities at all levels is easy. In the middle-sized towns, the authorities are anonymous while higher authorities remote, which may result in the population of such owns having less information and access to information.

One of the problem areas our survey intended to touch was corruption among the public administration officers. Alarming was the conclusion that almost 40 percent of the respondents had experienced corruption directly or indirectly. The degree of corruption in the Czech Republic is corroborated by the fact that almost one fifth of the respondents from whom a bribe had been solicited actually paid it. It should also be mentioned that one third of

the respondents from whom a bribe had been solicited, pretended not to have heard it while another third bluntly rejected to pay it. Most often, solicited bribes are actually paid by people from smaller towns with a population of 5 000 to 20 000 and by those who contact authorities often, which may suggest that this is kind of a routine in smaller towns. However, further, more specific research concerned with such problems would be needed to confirm this.

Due to the scope and focus of the present study, we cannot further extend our reasoning. The study brings the first results of a survey concerned with the way people appraise the quality of public administration in the Czech Republic. In the studies to follow, we will be analyzing the way public administration works as viewed by officers of selected ministries of the Czech government, to properly judge the efficiency of institutions implementing public policies in the Czech Republic.

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PUBLIC SUPPORT TO SMALL AND MEDIUM-SIZED ENTERPRISES IN SLOVAK REGIONS

Soňa Čapková, Adriana Kluchová

Abstract: *Small and medium sized enterprises (SMEs) are considered to be one of the important factors of regional development. However, SMEs are confronted with significant obstacles, which impede their development. Market failures provide an underpinning rationale for public support of SMEs development if even they are by no means the only basis for it. The concept builds on the importance of SMEs to employment and wealth creation and the concomitant need to encourage start-up and business development within this sector. The paper examines some issues of SMEs support by public intervention public support in developed and underdeveloped regions in Slovakia. Based on questionnaire survey it investigates to what extent are SMEs using public support and the opinion of entrepreneurs on its transparency. Accordingly, the proposal of monitoring and evaluation of SMEs public support in regions is presented.*

Keywords: *Small and medium-sized enterprises. Regional development. Public support for SMEs.*

JEL Classification: *D22, O18, R12.*

Introduction

Nowadays, central as well as regional institutions pay a special attention is addressed to regions, regional development and small and medium-sized enterprises (SMEs). Among the reasons for this are the consequences resulting from the 2008 economic crisis which have been one of the causes of the persisting divergence in regions' development levels and consequently also in the living standards of the population. Korec, Polonyová [2] consider regional disparities in Slovakia as a subsequent effect of the transition process after 1989.

The causes of regional disparities in terms of economic activities in the region were examined by Viturka [8] using the production function and 16 sub-indicators of the quality of the business environment from six areas (commercial, labour, regional, local, infrastructure, price and environmental). He concluded that disparities in development arise from hierarchical differentiation of social systems SMEs are considered an important factor of regional development in terms of economic development whose entrepreneurial activity negatively affected the 25008 economic crisis. In the Slovak Republic in 2015 small and medium-sized enterprises represented 99.9% of the total number of enterprises, they employed 73.6% of the active labour force and generated 52.8% of the value added [6]. Strážovská [7] highlights their high adaptability to market requirements, meeting even the most demanding customer and consumer requirements and their innovative function. On the other hand, Hribik [1] points out the existence of weaknesses in the SME's business activities, among which he advocates many tasks falling within the competencies of senior executives, a more complicated access to capital, a weaker position in tenders for public contracts. SMEs are easier to get into insolvency, they cannot afford to hire professionals and scientists, have a lower degree of technological development and limited means of promotion and advertising. Weaknesses affect SMEs competitiveness they are barriers to their innovation activities and a reason for providing public support to SMEs.

1 SMEs support and market failures

Government Interventions in the economy are the subjects examined by proponents' different approaches to economics. However, they do to share the view on this issue and thus the attitudes to public support experts depend on the preference of the approach. A very often-cited reason against the public support to SMEs is its inefficiency in the form of excessive burdens, although this can be reduced by positive externalities [4]. In the case of public support to SMEs, as positive externalities are regarded employment growth and economic growth in the regions, growth in exports and the overall development of the regions. The European Commission, in a handbook on State aid rules to promote innovation, states that SMEs are more exposed to market failures than large enterprises. Mitigating the consequences of market failures, in particular imperfect information, transaction costs, public goods, imperfect competition, the existence of externalities, are grounds for interventions in favour of small and medium-sized enterprises financed from public funds at supranational, national and regional levels.

2 Methods

The level of development of the regions at the NUTS 3 level is different in the Slovak Republic and one of the important factors is the entrepreneurial activity of SMEs. The aim of the paper is to propose some public support measures resulting from the analysis of the data obtained by questionnaire survey focused on the public support of SMEs in the underdeveloped and developed region of Slovakia, the way of its monitoring and evaluation.

Different methods are available to measure the level of development of regions, their choice their choice depends on the availability of data and the content of the research. When selecting a backward and developed NUTS 3 region representatives in our survey, we have selected indicators that are often used in national or international analyses (e.g. the EU, OECD), such as GDP per capita, registered unemployment rate, net cash household income, risk-of-poverty rate. We employed secondary data from available databases of the Statistical Office of the Slovak Republic. When measuring the level of development of the regions, we used the statistical method of ranking and we chose the Prešov Region as a representative of the underdeveloped regions and the Trnava region as a representative of the developed regions of the SR. To analyse the use of public support to SMEs in both regions, we obtained primary data by questionnaire survey. The parent population is made of 4 673 domestic private SMEs in the Trnava and Prešov regions with 5 and more employees and less than 250 employees. Of this number, medium-sized enterprises represented 6.81% (318), small enterprises 42.63% (1 992) and micro-enterprises with a staff of 5 to 9 employees of 50.57% (2 363). The sample was made up of 8% of enterprises from the population, namely 374 enterprises. Out of the 374 SMEs, 26 enterprises were medium-sized enterprises (6.95%), 160 small businesses (42.78%) and 188 micro-enterprises (50.27%). SMEs in each category were represented equally in the Trnava and Prešov regions.

3 Public support to SMEs in regions

Since 1990, several types of institutions and initiatives aimed at SMEs support have been established in the Slovak Republic. In our survey, we focused on the scope of using this support by the individual size categories of SMEs in two regions of different economic levels.

3.1 Using SME support in selected regions

The use of some of the forms of public support refer less than 25% of SMEs in all size categories in both regions. The questionnaire survey showed a higher percentage of using public support in the Prešov region.

Tab. 1: Using public support to SMEs in previous two years in Prešov a Trnava regions (in %)

SMEs	Micro-enterprises		Small enterprises		Medium-sized enterprises	
Region	**Trnava**	**Prešov**	**Trnava**	**Prešov**	**Trnava**	**Prešov**
Yes	22.34	31.91	12.5	20	15.38	23.08
No	77.66	68.09	87.5	80	84.62	76.92
∑	100	100	100	100	100	100

Source: own elaboration

Businesses as the reason for non-use of public support indicate administrative difficulty, financial difficulty, the possibility of corruption in approving the granting public support, overly demanding criteria and little awareness of the public support provided. Tab. 2 shows the resources that SMEs use to obtain public support information and their views on the availability of information.

Tab. 2: Sources of information relating to SMEs public support in Prešov and Trnava regions (in %)

SMEs	Micro-enterprises		Small enterprises		Medium-sized enterprises	
Region	**Trnava**	**Prešov**	**Trnava**	**Prešov**	**Trnava**	**Prešov**
Source of information						
Internet	64.89	75.54	68.75	76.25	69.23	61.54
Regional advisory and information centre	0	0	6.25	10	0	23.08
Slovak business chamber	0	3.19	2.5	2.5	23.08	0
First contact centre	5.32	9.57	5	1.25	0	0
There is no available source	29.79	11.7	17.5	10	7.69	15.38
∑	100	100	100	100	100	100
Availability of information						
Yes	12.76	6.38	28.75	27.5	15.38	30.77
Rather no	52.13	47.87	38.75	51.25	69.24	30.77
No	35.11	45.75	32.5	21.25	15.38	38.46
∑	100	100	100	100	100	100

Source: own elaboration

SMEs receive information on public support predominantly from the website, which is apparently is relating to the opinion on the lack of availability of information about public support to SMES. The percentage of answers ‘rather not’ and ‘no’, is substantially higher than the percentage of the positive answers.

Innovation is considered substantial in regional development and increasing the competitiveness of SMEs. Because the financial resources of SMES are very often limited and insufficient, a part of the public support to SMEs is focused to the implementation of innovation activities. Tab. 3 lists the most frequently used sources for SMEs to obtain information in this area and their views on the sufficiency of the available information on the institutions providing public support.

Tab. 3: Sources of information about the possibility of public support for SMES in the field of innovation and adequacy of the information about the institutions providing public support (in %)

SMEs	Micro-enterprises		Small enterprises		Medium-sized enterprises	
Region	**Trnava**	**Prešov**	**Trnava**	**Prešov**	**Trnava**	**Prešov**
Source of information						
Internet	60.64	71.28	76.25	85	76.92	69.23
Business innovation centre	3.19	0	2.5	1.25	0	0
Innovation partner centre	2.13	3.19	0	1.25	0	7.69
There is no available source	34.04	25.53	21.25	12.5	23.08	23.08
∑	100	100	100	100	100	100
Availability of information on institutions						
Yes	12.76	6.38	27.5	25	15.38	23.08
Rather no	57.45	55.32	40	50	69.24	46.15
No	29.79	38.3	32.5	25	15.38	30.77
∑	100	100	100	100	100	100

Source: own elaboration

Again, SMEs in all size categories receive information on innovation support most often via the internet. At the same time, the questionnaire survey pointed to the lack of awareness of SMES on the institutions providing public support. For this reason, we consider it necessary to draw up the overview of the institutions providing public support at the national and regional level and publish them on the website of the National business centre and its regional branches for each region separately. At the same time, it is necessary to pay more attention to their promotion.

Public support is financed from public resources, which is related to the requirement of clear approval criteria and procedures in its provision. How SMEs representatives perceive the transparency of the provision of public support is shown in Tab. 4.

Tab. 4: SMEs opinion on the transparency of public support provided to SMEs (in %)

SMEs	Micro-enterprises		Small enterprises		Medium-sized enterprises	
Region	**Trnava**	**Prešov**	**Trnava**	**Prešov**	**Trnava**	**Prešov**
Transparency of public support						
Yes	5.32	0	6.25	3.75	7.69	0
Rather yes	0	27.66	20	23.75	23.08	23.08
Rather no	21.28	43.62	31.25	43.75	53.85	61.54
Incidence of corruption	52.12	9.57	20	12.5	7.69	7.69
No	21.28	19.15	22.5	16.25	7.69	7.69
∑	100	100	100	100	100	100

Source: own elaboration

SMEs do not believe in a transparent public support process. The values of the corruption occurrence are higher than the positive response values. Therefore, we consider disclosure of procedure directives from the submission of the application, the approval, the process of providing and controlling the public support of SMEs to be basic measure for changing the situation.

The questionnaire survey has demonstrated the low use of public support, but we cannot say that SMEs are not interested in providing it, as evidenced by the results of the survey in Tab. 5

Tab. 5: SMEs interest in public support (in %)

SMEs	Micro-enterprises		Small enterprises		Medium-sized enterprises	
Region	**Trnava**	**Prešov**	**Trnava**	**Prešov**	**Trnava**	**Prešov**
Interest in training						
Yes	61.7	69.15	52.5	60	61.54	61.54
No	38.3	30.85	47.5	40	38.46	38.46
∑	100	100	100	100	100	100
Interest of a form of public support						
Only direct financial support	25.53	47.87	15	32.5	30.77	23.08
Direct and indirect support	38.3	37.23	50	45	46.16	61.54
Only indirect support	0	2.13	1.25	2.5	7.69	0
Not interested in any public support	36.17	12.77	33.75	20	15.38	15.38
∑	100	100	100	100	100	100

Source: own elaboration

More than 50% of SMEs in all size categories showed interest in training on public support in both regions. The Tab. 5 illustrates the interest of SMEs in providing both direct and indirect public support. Therefore, we consider necessary for the Regional Branches of the National Business Centre to organize training courses on the system of public support for SMEs in the Slovak Republic on regular basis.

3.2 Monitoring and evaluating public support to SMEs

Support for SMEs is traditionally carried out by public bodies or non-profit organizations funded partly or wholly from public sources. Most experts agree that it is often too general, supply-driven, the evaluation of its effectiveness is lacking. Support for existing SMEs or starting new businesses is one of the decisive strategies aimed at developing economic activities and encouraging the exploitation regional potential, but there is a need for examination and feedback on the benefits provided by public support to SMEs. We propose that the monitoring and evaluation of the public support will be carried out at the NUTS 3 region in the regional branch of the National Business Centre. Then the results will be transferred to the central level where the experts assess the outputs from all the regions and prepare an overall evaluation of the public support provided SMEs. It is important to be aware of effectiveness and economy of the public funds available to SMEs in each region and to compare it between developed and underdeveloped regions. Various methods are available for assessing effectiveness and cost-effectiveness, depending on the indicators that have to be measurable. Our indicators designed to measure the effectiveness of the direct public support tools of SMEs are shown in Tab. 6.

Tab. 6: Instruments and indicators to measure direct public support to SMEs

Instruments of direct public support	Indicators
subsidies	- % increase in SMEs contribution to GDP - % increase in the number of SMEs purchases of modern environmentally friendly technologies - % increase in number of SMEs employing 50 - 249 employees - % increase in employment in SMEs
credits and refinancing loans	- % increase in SMEs contribution to GDP - % increase in the number of SMEs purchases of modern environmentally friendly technologies
micro-loans	- % increase in SMEs contribution to GDP - % increase in the number of SMEs purchases of modern environmentally friendly technologies
financial contributions	- % increase in number of SMEs
innovation vouchers	- % increase in the investment of funds from total turnover into business activity

Source: own elaboration

To support innovation activities of SMEs, not only forms of direct public support but also indirect are inevitable. Proposed indicators for measuring its effectiveness and economy are shown in Tab. 7.

Tab. 7 Instruments and indicators to measure indirect public support to SMEs

Instruments of indirect public support	Indicators
trainings and courses	- % increase in the number of applications for indirect support - % increase in innovation activities of SMEs, - % decrease in business deaths - % raising awareness of public support for SMEs
business incubators	- % decrease in starting business deaths - % in growth of interest in starting business
preferential rental of premises owned by the municipality	- % decrease in business deaths - % in growth of interest in starting business - % decrease in unemployment rate
support for the participation of SMEs at exhibitions and welfares abroad	- % increase in export of SMEs - % increase in the number of applications for innovation voucher
consulting services	- % decrease in business deaths - % increase in the number of applications for support - % increase in number of SMEs with business activities abroad

Source: own elaboration

In the case of indirect support for SMEs, entrepreneurs do not receive direct funding, but free or paid for services are provided that can significantly affect their business activity. Some entrepreneurs do not attach much importance to indirect support (as research has shown), but in fact it can bring benefits to many businesses in many areas. Trainings and courses raining contribute to enhancing knowledge and skills of employees as well as entrepreneurs respectively managers, in not only the area ofbusiness, but also in economics (economic and

financial analysis, business plan, structural funds, etc.), foreign languages, information technologies, public support for SMEs.

4 Discussion

The conducted research has shown persistent problems in providing public support to SMEs. Less than 25% of SMEs in the regions under review have used some form of public support over the two consecutive years. As a reason, they highlighted administrative difficulty, financial difficulty, the incidence of corruption in the approval process of public support, demanding criteria, and little awareness of the public support system for SMEs. Similar results were also made by the Slovak Business Agency [5] in the questionnaire survey conducted in 2015, where as a prerequisite for a more efficient use of public support, entrepreneurs most often cited shorter applicants' rating procedures, higher funding rates, and engaging entrepreneurs in preparing support programs . Our research has shown SMEs´ interest in training on public support and in some of the forms of public support.

Imperfect information is one of market failures most often-justifying intervention in favour of SMEs, Imperfect information is usually associated with start-ups and justifies to provide education, training and consulting services, although companies themselves do not appreciate their contribution to business. Positive externalities provide argument for setting up incubators. Effective financial instruments to mitigate market failures and distortions caused by a high level of credit risk, lack of capital for SMEs but also a small size of the economy include loan guarantee schemes, schemes to support start-ups and soft loans. The presence and intensity of market failures is not the same in all regions, therefore interventions aimed at their correcting them should be in line with the conditions of the particular region. Regional support institutions have a good position in the preparation and implementation of SME-supporting activities because they know the territories in which they operate. Strengthening the role of regional institutions and programs requires a step forward to monitor and evaluate the benefits of their interventions

Conclusion

Although the analysis of the using public support to SMEs was carried out in regions of different economic levels, there were no significant differences in the results. The results of the questionnaire survey highlighted the low use of public support, low knowledge of public support institutions, which had an impact on SMEs' low awareness of public support provided to SMEs. At the same time, SMEs have expressed their interest in training on public support and in the use of some of the forms of public support.

The quality and quantity of public support is limited by the amount of available resources and requires systematic monitoring and evaluation of its effectiveness. In addition to inputs and outputs measurement, the impact of interventions on SME activity and performance should be monitored, although such assessment is often accompanied by methodological problems.

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USING MODERN TECHNOLOGIES TO ENSURE STATE SECURITY

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Abstract: *State security has an important role of maintaining a stable and secure environment in the society. Using modern technologies, e.g. like technologies supporting the concept of the smart city, increase public security. The paper is focused on using modern technologies to ensure state security. The possibilities of ensuring state security are included. The article describes world trends in security. Two case studies regarding public security in the Czech Republic are listed, too. The first case study is focused on the utilization of unmanned aerial vehicle (UAV). The second one case study is focused on using biometrics at the airports. The article contains recommendations for future safety improvements. The aim of the article is to evaluate the use of modern technologies for security in the public sector. Because the security is one of the key parts not only of the concept of smart cities.*

Keywords: *Smart cities, innovation, UAV, biometrics, state security.*

JEL Classification*: O30, D80.*

Preface

The concept of the smart city belongs to principles of sustainable development. It means a city which for their own organization use modern technologies for increasing the life quality and doing more effective government. About the intelligent city is possible speaks after using whole 16 components. The components include whole problematic of implementation various frames (organization, community, infrastructure and resulting). The city can be considered as smart after implementation of all frames. [24]

As it was mentioned above, modern technologies are one of the key parts of the smart city. They are used to support sustainable development of the city. Therefore, this is the reason why the article is focused on modern technologies, which are used by the public administration. Methods to ensure state security are presented. The article presents an overview of various modern technologies used in various areas of research. Next, the two case studies are included. The case studies are focused on the situation and utilization of modern technologies for increasing the security level in the Czech Republic. The first case study is focused on utilization of unmanned aerial vehicles (UAV). The second case study is focused on utilization of biometric measures at airports. Current requirements to constantly improve aviation security are the pillars for changing and improving the security processes at the airports. Recommendations for the future are included in the case studies, too. The aim of the paper is to evaluate utilization of modern technologies to assure or increase security in the public sector.

1 Using modern technologies for increasing state security

Smart cities are comprised of diverse and interconnected components constantly exchanging data and facilitating improved living for a nation's population. More than 50 % of the world's population today reside in urban areas and this percentage is expected to increase because of population migration to these regions in the quest for better jobs and education. [20]

The urbanization rate is approximately 73.1 % in the Czech Republic, so only a quarter of the population lives outside the cities [13]. This is the reason why more and more scientific institutions deals with the problem of a smart city. The areas of intelligent city services are [44]:

- Waste management – efficient and economical waste management. Electronic solutions to support sorting, ecology and cost optimization.
- Transport – introducing modern ways of driving and regulating road traffic in cities. Support for the introduction of transport zones. Modernization of city parking services. Integration of modern payment methods.
- Energy – reducing the energy intensity of urban public systems and buildings. Support for the transformation of public lighting in the modern communication infrastructure of the city.
- Safety – to ensure the security of the city's residents.
- Information – increasing the effectiveness of communication between the city and citizens. Digitizing administrative agendas and city furniture. Integration of modern payment methods.
- Environment – Measuring environmental quality in cities and buildings interiors. Supporting compliance with environmental requirements and standards and overall environmental improvement.
- ICT infrastructure – a flexible portfolio of cloud, data, sensory and communication technologies.

Tab. 1 provides a selection of examples of modern technologies, which improve the quality of life in smart cities.

Tab. 1: Examples of modern technologies in smart cities

Category	Description
Smart parking [22]	Monitoring of parking spaces available in the city.
Smart street lights [5]	Movement of vehicles and humans is detected on highways to switch on of street lights ahead of them and switch off the trailing lights. Indicates street light failure by sending SMS.
Tracking and optimizing traffic [21]	Displaying an alternative route with smart signs during traffic jams.
UAV [25]	Using UAV for forest mapping and prevention of hazardous situations.
Smart Airport [23, 34]	Utilization of multimodal biometric systems to ensure greater passengers safety
Waste management [3, 27]	Fill indication of bins and carriage optimization.
Smart Administration [24]	Using mobile applications to better target citizens at offices. Using SMS for an alert system.

Source: [3], [5], [21], [22], [23], [24], [25], [27], [34]

Two modern technologies listed in Tab. 1 are discussed in the case studies. The first one is focused on utilization of unmanned aerial vehicles (UAV) for various purposes. The second one is focused on utilization of biometric measurements for security management in the traffic (airports).

2 Case studies

The article contains two case studies. Both are focused on the area of the Czech Republic. The first case study is focused on utilization of UAV because of a potential of UAVs for various purposes in the public safety. The second case study is focused on increasing security at the airport by using biometrics.

2.1 Using unmanned aerial vehicles in the Czech Republic

The term UAV is explained as flying vehicles, which can fly without a pilot [43]. The vehicles are divided into three groups [43]:

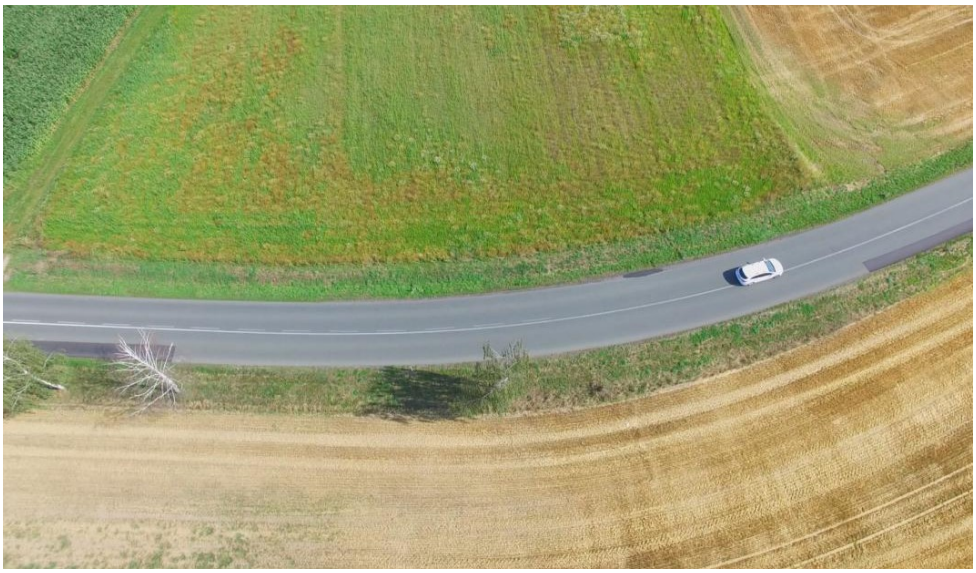
- UAV,
- RPVs – remotely piloted vehicles,
- drones.

All the groups are without a pilot, the general public all vehicles understand all of them as UAV. The professional public distinguishes terms RPV and UAV. RPV is a remotely piloted vehicle, which is remotely controlled. On the other hand, UAV can execute autonomous and pre-programmed missions. So, an RPV is always a UAV, but a UAV may not be an RPV. [16]

Utilization of UAVs in the Czech Republic is increasing. Civil Aviation Authority Czech Republic (Úřad pro civilní letectví – UCL) publishes all regulations regarding utilization of UAVs [12]. For society, utilization of UAVs by the police is mostly known but other parts of the public administration use UAVs, too.

The police primarily use the UAV for monitoring traffic. The hazardous behaviour of car drivers is the key part of using UAV in these days. It means that the police finds out, which areas are suitable for monitoring the traffic offences. The area should be chosen by a few criteria. One of the criteria is visibility. It means that the monitored area is completely visible, so there are not for example trees, which should blockade the view. An area where the traffic offences are often committed represents the next criterion. For example, it is a place where car drivers overtake other cars regardless of traffic regulations. This behaviour is hazardous and often ends as a car crash. It is necessary to meet criteria of secure flying also. It means secure fly of the UAV, not in windy or snowy weather or close to the people or building. The suitable places for monitoring the traffic offences are chosen after. In the Pardubice region, they are the road between Pardubice city and Hradec Králové city, the road between Pardubice city and Dašice city and roads close to Lanškroun city. The UAV is located above the critical part of the road. When the car driver commits a traffic offence, the policeman can see it thanks to the camera fixed on the UAV. The view can be seen in the Fig. 1. The policeman stands 300 metres along the monitored place or area and when he can see the traffic offence he has enough time to stop the car driver who committed the traffic offence. So, the policeman controls traffic situation and he can immediately intervene. The police want to use the UAV for traffic control, for help with mass traffic accidents and natural disasters. [1], [41]

Fig. 1: Using police UAV for monitoring traffic offences



Source: [1]

UAVs are also used in forestry in the Czech Republic [33]. It is usually used for monitoring afforestation, forest health mapping, and calamity mapping. Faculties focused on forestry with cooperation with forest industry are working on possibilities of utilization of UAVs in forestry. The low endurance of batteries is the key problem of cheaper UAVs. Therefore, the main research is focused on increasing endurance of batteries. Possibilities of afforestation monitoring by UAV belongs to other ways of UAVs utilization. [17], [25], [33]

In agriculture, the main objective is crop monitoring and monitoring of natural disasters, e.g. floods or droughts. The early crop monitoring can prevent devastation of a crop. Early utilization of chemical insecticide or increasing watering in warm days can be given as examples of prevention. Water sources monitoring is important as well. Early monitoring before floods can help to decrease damages. Water sources and water streams (e.g. rivers or ponds) monitoring can help to the next planning of the sustainability of water in the landscape. [11], [19]

Increase the security of UAVs utilization is the key issue for the future. Increasing number of attacks by drones, misuse of UAVs, and flying without permission and in places where the flying is not allowed, e.g. near to the airport represent the key problematic issues. Therefore, the development in various countries is focused on secure catching of unpermitted UAVs by taking down drones by larger drones, eagles trained to catch a drone, and catching UAVs to the net [42]. The problem is with catching the owner of the UAV. It means how to find the pilot or owner of the UAV. And owner/pilot takes full responsibility for the flying with drone. Using UAVs for the forensic analysis should be possible in the Czech Republic in the future. It should help with the reconstruction of the unlawful action in the civil and criminal law [7].

2.2 Using biometric systems on the airport (border control)

Biometric authentication works on the principle**: Every person is identical only by himself.** Biometric systems use unique physical or behavioural characteristics to people authenticate. Physiological biometrics refers to a person's physical attribute [18]:

- iris,
- retina,
- face,
- fingerprints, palmprint,

- hand geometry,
- DNA.

Due to the increased security risk at international airports, biometric systems are being used. These are intended to increase the security of airport border controls but also to facilitate and speed up the clearance of legal passengers.

There are three major factors influencing the performance of the automatic identity recognition [35]:

- Quality of the reference image digitally stored on the passport or visa information system.
- Quality of the image live recorded at the gate or tunnel.
- Quality of the used algorithm for recognition.

2.2.1 Czech Republic (Václav Havel Airport Prague)

The Prague Airport at Ruzyně uses biometric gateway E-Gate when carrying out security checks in the border inspection. The automatic system uses biometric data stored in the chip of a travel document. E-Gate acquires biometric face information from the travel document and then it verifies the identity of the passenger. [31]

The first passengers used the gate in 2012. The project 'Strengthening automated e-Pass control systems at international airports' was funded by the Norwegian Funds, the 'Programme CZ14 – Schengen Cooperation and Combating Cross-border and Organized Crime, including Trafficking and Itinerant Criminal Groups'. [15]

The Easy Go can only be used by citizens of the European Union, the European Economic Area, and Switzerland, over 15 years of age, fly outside the Schengen area and own a biometric passport. 1 million (50%) of eligible passengers used the possibility of automatic border control in one of 17 gates in 2016. Border control time depends on the behaviour of the passenger, averaging 15 seconds. [28], [31]

Biometric e-passes were required to be implemented by all EU Member States according to EU Council Regulation (EC) No 2252/2004 on standards for security features and biometrics in passports and travel documents issued by the Member States. The first biometric feature (face) in newly issued travel documents had to be introduced by the end of August 2006 and other biometrics (fingerprints) until the end of February 2008. [28], [31]

Fig. 2: E-gate – border control

Source: [28]

2.2.2 Other airports in the Czech Republic (Brno and Pardubice)

Other international airports in the Czech Republic are Pardubice or Brno airports. These airports carry hundreds of thousands of passengers a year. For comparison, Václav Havel Airport Prague annually transports millions of passengers. Nowadays, biometric systems are not used in these smaller Czech airports to increase safety. [36], [37], [40]

2.2.3 New approach at airports outside the Czech Republic

More and more countries are using biometric systems to control airports. An important event that helped to extend biometric systems at airports was a terrorist attack on September 11, 2001 at the Twin Tower in New York. [38]

Among the airports using the latest biometric methods are eight major international airports in Australia. Arrivals SmartGate uses the information in ePassports and facial recognition technology. [4]

Dubai is the place where innovative technology is used. At the airport, identification is performed using the iris and face. [29] In the 2008, they also tested ‘smart tunnel’. It would enable travellers to complete immigration checks in just 15 seconds, while passing through a virtual aquarium where the cameras are installed. [14]

Safety has always been Israel's priority. This is also reflected at Ben Gurion Airport, where passenger identification is used on the basis of hand geometry. The Israeli solution is based on the US solution (INSPASS), which was used at international US airports. Today, US fist traps are used at US airports to identify passengers. [9], [30], [38]

Amsterdam Schiphol is one of Europe's largest airports, according to the number of passengers checked out. Now they use self-service gates. The gate identifies the passenger by the face, after applying the e-passport. Now Schiphol is testing 'biometric boarding'. In this test opportunity to board for this trip without presenting your boarding pass. You will board

the aircraft quickly and easily via a separate gate that will identify you through facial recognition. [2], [8]

2.2.4 Recommendations

Increasing the safety of airport procedures, using biometric systems, is a key solution for the future. Developments in different countries vary greatly, and due to the laws of individual countries. One of the fastest passenger control solutions available in Dubai, identifying is done with the iris and takes 1-2 seconds. The iris-based biometric system is safer than the current system used at Václav Havel Airport, so it is one of the options for the future. The problem, however, is the higher cost of this system and the reference template (iris) that is not in the biometric passports of the European Union. At smaller airports, the future of using the E-Gate system. [29], [32]

3 Discussion

Increasing security precaution by modern technologies is an inherent part of the concept of the smart cities. Problems can be funded with restrictions and law but the government wants to react to actual security trends. As well financial part of this concept can be a problem for small cities, which want to react to the new trend, but their funding is not adequate for establishing the new technologies. In the small cities isn´t used smart traffic management, because the traffic isn´t there overcharged. Problem with secure utilization of modern technologies must be solved, too. It is not only about security regarding the data, which is problematic too, but it is about abusing the technologies, which can evoke hazard situation or human losses. This is the reason why the security regarding using modern technologies must be provided.

Conclusion

The concept of smart cities has increasing significance because of the modern technologies development in these days. One of the ways how to use modern technologies is to ensure state security. Therefore, the paper is focused on the utilization modern technologies in public security. The paper contains a brief overview of utilization of various technologies. In the paper, there are provided two case studies. Both are focused on the Czech Republic. The first one deals with the utilization of UAVs to ensure security. The second one deals with the utilization with biometric measurements in the public security. Both case studies contain recommendations for the future. The problems with the smart cities from the security view are listed also.

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EFFICIENCY OF PUBLIC SERVICES: THE CASE OF JOINT OFFICES FOR CONSTRUCTION ORDER SERVICES IN SLOVAKIA

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Abstract: *We assess efficiency of municipal offices providing services in the field of construction order, using techniques of Data Envelopment Analysis. Analysis is performed on a sample of Nitra region offices. In the paper we analyse differences in efficiency between joint municipal offices and offices serving non-associated municipalities, and potential efficiency gain of a merger of non-associated offices. Our results suggest that most municipal offices could improve performance without necessary increase of used resources. Second stage analysis of merger efficiency shows that there might be efficiency gain of merger of offices operating in increasing returns to scale region.*

Keywords*: joint municipal offices, construction order competence, technical efficiency, merger efficiency, data envelopment analysis.*

JEL Classification: *C14, C61, H76, R50.*

Introduction

The decentralization of competences in Slovakia, resulted in strengthening the intermunicipal cooperation in the form of establishment of joint municipal offices (JMO). It was understood as a way to perform public services more efficient way. The process of intermunicipal cooperation in Slovakia was introduced into practice in 1992, by amendment of the Act No 369/1990 Coll. on Municipal Establishment and amendment of the Constitution No 460/1992, as amended.

The legislation of SR recognizes only format cooperation among municipalities. Intermunicipal cooperation as a form of internal voluntary cooperation of municipalities can be established by Agreement on establishment of joint office. The participants of such JMO must be at least two municipalities. The contract must be approved by municipal councils of all the participating municipalities.

The widest competence performed by the joint municipal office is the construction order competence. The competence construction order was transferred to municipalities by Act No 416/2001 Coll. on transfer of some competences from state administration to municipalities and higher territorial units. The process of transfer was connected with a lot of problems. The competence was transferred to all municipalities in Slovakia (2 891) while there were only 440 employees performing the competence at the district offices before the decentralization process. The positive fact was that the delivery of the competence was brought closer to citizens and that municipalities were empowered to decide about their territory on their own (in accordance with legislation).

Current situation of joint municipal offices performing the competence in the field of construction order is shown in Tab. 1:

Tab. 1: Comparison of the JMO within regions (competence: construction order)

Region	Number of JMO	Share of associated municipalities in %	Share of resident population in the associated municipalities in %
Bansko- Bystrický	34	95.0	90.9
Bratislavský	11	61.1	34.5
Košický	29	85.0	56.4
Nitriansky	26	97.2	92.4
Prešovský	25	92.0	71.5
Trenčiansky	23	87.3	68.5
Trnavský	23	89.6	88.7
Žilinský	27	89.2	75.0

Source: (Grešová, 2016)

It is evident, that share of municipalities associated in JMO varies significantly among regions. There is an extensive debate what way the process of creating joint municipal offices should continue. Typical questions related to JMO are:

- are JMO performing better than offices of non-associate municipalities?
- is there some optimal size of JMO in terms of number of associated municipalities?
- is there some optimal size of JMO in terms of served resident population?
- can we expect efficiency gain from merger of offices of non-associated municipalities?
- can we expect positive effects from breakup of some inefficient large scale JMOs?

To answer these questions is an objective of this paper. Since several criteria should be taken into consideration in evaluation process, our motivation is to analyse performance of JMOs using multidimensional approach of Data envelopment analysis (DEA). This mathematical programming tool is nowadays widely used in efficiency assessment of various types of organizations, including public administration institutions and local government offices. Special applications of DEA models are capable to express various features of efficiency of analysed units, e.g. technical efficiency, scale efficiency, size efficiency, allocative efficiency, and also merger efficiency and breakup efficiency.

At present there is a large number of studies analysing efficiency employing DEA at the local level. Following Cuadrado-Ballesteros et al. (2013) such works are Worthington (2000) for Australia; Brueckner (1979) for New Jersey; Grossman et al. (1999) for the USA; Vanden et al. (1993), De Borger et al. (1994) and De Borger, Kersten (1996) for Belgium; Taïrou (2000) for France; Worthington et al. (2001) for Wales; Dijkgraaf, Gradus (2003) for the Netherlands; Dijkgraaf et al. (2003) for Denmark; Reeves, Barrow (2000) for Ireland; and Ohlsson (2003) for Sweden.

De Borger, Kerstens (2000) identify two strands of empirical research in local efficiency literature. On the one hand, there are studies that evaluate efficiency in a global way, covering all or at least several services provided by local governments. See, for instance, Van den Eeckaut et al. (1993), De Borger et al. (1994), De Borger and Kerstens (1996), Athanassopoulos, Triantis (1998), Worthington (2000), Prieto, Zofio (2001), Balaguer-Coll et al. (2002), and Afonso, Fernandes (2006) among others. On the other hand, there are studies

that evaluate a particular local service, as it is the case, for instance, of solid waste collection (Burgat, Jeanrenaud, 1994), fire protection (Bouckaert, 1992), local police units (Davis, Hayes, 1993) and general administration (Kalseth, Rattsø, 1995).

According to authors knowledge there is yet no study analysing merger or breakup efficiency at local government level. But inspiration can be taken in empirical research done in other sectors. DEA applications in mergers are found in areas such as banking (Wheelock, Wilson, 2000; Luo, 2003; Sherman, Rupert, 2006; Hahn, 2007; Wu et al., 2011; Wu, Birge, 2012; Wu et al., 2015; Moradi-Motlagh, Babacan, 2015; Du, Sim, 2016), non-bank institutions like credit units (Fried et al., 1999; Worthington, 2004; Jin et al., 2015; Halkos et al., 2016), healthcare (Kristensen et al., 2010), airlines (Kong et al., 2012), and agriculture (Bogetoft, Wang, 2005).

1 Methods

As a rigorous technique for public service provision efficiency measurement we employ Data Envelopment Analysis (DEA). DEA is an analytical tool that enables to identify best practice units in the use of resources among a group of similar organisations.

In our analysis we use DEA in the first stage as a tool for comparative analysis of the sample of municipal offices. The objective of the comparative analysis is (1) to discriminate analysed offices to efficient and inefficient units; (2) to distribute inefficient units into groups according to returns to scale regions they belong to.

We employ output oriented CCR DEA model (Charnes, Cooper and Rhodes, 1978), assuming constant returns to scale (CRS) and BCC DEA model (Banker, Charnes, Cooper, 1984), assuming variable returns to scale (VRS):

$$\begin{aligned} &\max \varphi \\ &Y\lambda \geq \varphi y_o \\ &X\lambda \leq x_o \\ &\lambda \geq 0 \text{ (CRS constraint)} \\ &1'\lambda = 1 \text{ (VRS constraint)} \end{aligned} \tag{1}$$

where, φ is technical efficiency measure, λ is Nx1 vector of intensity variables, Y is SxN matrix of S outputs and N offices, X is MxN matrix of M inputs of N offices, y_o is Sx1 vector of outputs of the office under observation and x_o is Mx1 vector of inputs of the office under observation.

Optimal solution to model (1) is φ^* and λ^*. If $\varphi^* = 1$ and $\lambda_o = 1$, then office under observation is efficient. If $\varphi^* > 1$, office is inefficient.

The output-orientation is applied since our offices usually have to provide unknown level of outputs (in this case construction order services) based on given input resources provided by government and derived from the resident population of a region serviced by the offices. The assumption of constant returns to scale is only appropriate when all decision-making units operate at optimal scale. Here in the first stage of the analysis we use CCR DEA model for the purpose of the determination of returns to scale region of analysed offices.

Following Seiford and Zhu (Omega, 1999) we distribute offices to returns to scale (RTS) regions according to following rules:

(i) constant RTS prevail at offices if and only if $\varphi^* = 1$ and $\sum_j^N \lambda^* = 1$ in any optimal solution of CCR model (1).

(ii) decreasing RTS prevail at offices if and only if $\varphi^* > 1$ and $\sum_j^N \lambda^* > 1$ in any optimal solution of CCR model (1).

(iii) increasing RTS prevail at offices if and only if $\varphi^* > 1$ and $\sum_j^N \lambda^* < 1$ in any optimal solution of CCR model (1).

Offices operating in increasing RTS region have a potential to improve their efficiency by increasing their scale, and offices operating in decreasing RTS region can improve their efficiency by decreasing their scale. In the following chapter we describe methodology for analysis of a potential efficiency gain resulting from scale size increase by a merger of offices identified as units in increasing RTS region.

We assume merger of K offices (k = 1, 2, ..., K) belonging to increasing RTS region. The vector $y^j = (y_{1j}, y_{2j}, ..., y_{Sj})$ is an output mix and the scalar x_j is the input of the office j $(j = 1, 2, ..., N)$. In the measuring output oriented merger efficiency in the single–input and multiple output case we follow Bogetoft and Wang (2005) and Ray (2004) procedure in the following steps:

Step 1: Solving the output-oriented BCC DEA problem for each office k (k = 1, 2, …, K):

$$\max \varphi_k$$

$$\text{subject to } \sum_{j=1}^{N} \lambda_j y^j \geq \varphi_k y^k; \tag{2}$$

$$\sum_{j=1}^{N} \lambda_j x^j \leq x_k;$$

$$\sum_{j=1}^{N} \lambda_j = 1;$$

$$\lambda_j \geq 0; \quad (j = 1, 2, ..., N); \quad \varphi_k \text{ free}$$

From the optimal solution of (2) construct the efficient input-output combination (y_*^k, x_k^*), where $y_*^k = \varphi_k^* y^k$ and x_k^* is the slack-adjusted input mix.

Step 2: Construct the average input level:

$$\bar{x} = \frac{1}{K} \sum_{k=1}^{K} x_k^* \tag{3}$$

and the average output mix

$$\bar{y} = \frac{1}{K} \sum_{k=1}^{K} y_*^k \tag{4}$$

Step 3: Solve the BCC DEA problem

$$\max \varphi^H$$

$$\text{subject to } \sum_{j=1}^{N} \lambda_j y^j \geq \varphi^H \bar{y}; \tag{5}$$

$$\sum_{j=1}^{N} \lambda_j x^j \leq \bar{x};$$

$$\sum_{j=1}^{N} \lambda_j = 1;$$

$$\lambda_j \geq 0; \quad (j = 1, 2, ..., N); \quad \varphi^H \text{ free.}$$

Step 4: Define the total (slack-adjusted) input level

$$x^T = K\bar{x} \tag{6}$$

and total output mix

$$y_T = K\bar{y} \tag{7}$$

Step 5: Solve the BCC DEA problem

$$\max \varphi^T$$

$$\text{subject to } \sum_{j=1}^{N} \lambda_j y^j \geq \varphi^T y^T; \tag{8}$$

$$\sum_{j=1}^{N} \lambda_j x^j \leq x_T;$$

$$\sum_{j=1}^{N} \lambda_j = 1;$$

$$\lambda_j \geq 0; \quad (j = 1, 2, ..., N); \quad \varphi^T \text{ free}$$

Step 6: Compute the merger efficiency as

$$ME = \varphi^T \tag{9}$$

A value of ME greater than unity implies that gains from merger will be positive whereas a value less than unity shows that it would be efficient to leave the offices as separate units.

2 Data

Efficiency of municipal offices providing services in construction order has been analysed on a sample of 37 offices taken from Nitra region within the period 2010 – 2014. In the

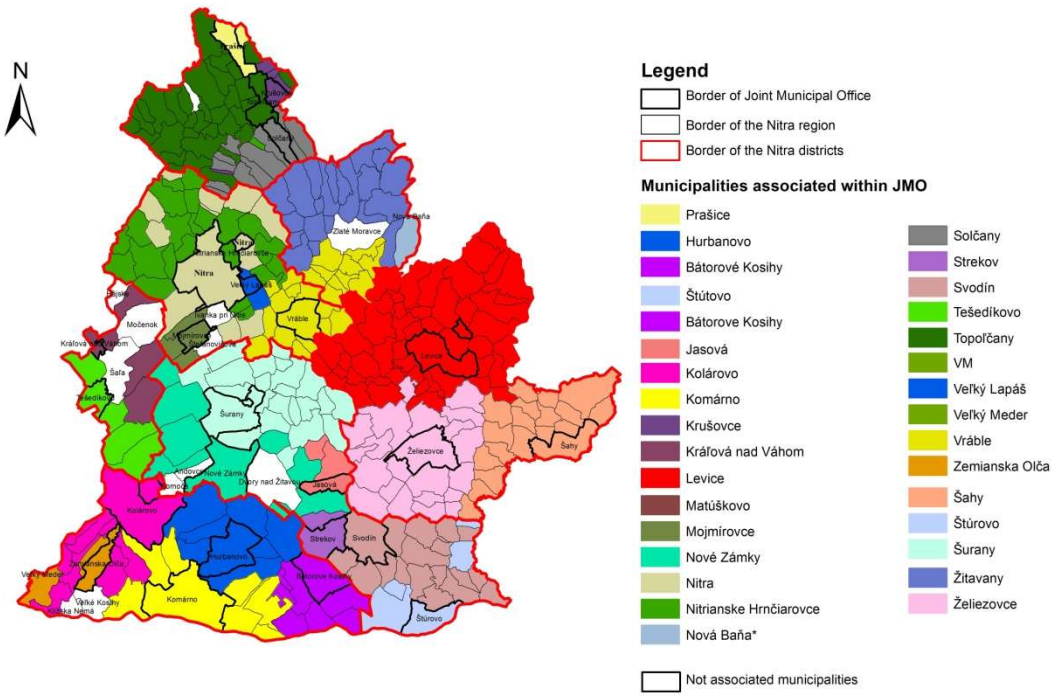
sample there are 27 joint municipal offices, providing services for 366 associated municipalities, and 11 offices providing services for 11 non-associated municipalities. One joint municipal office is providing services on average for 13 associated municipalities. Descriptive statistics for all offices is given in Tab. 2. Spatial distribution of associated and non-associated municipalities in Nitra region is shown in Fig. 1.

Tab. 2: Descriptive statistics for Municipal Offices of Nitra region

Descriptive statistics	Resident population served by an office	Number of municipalities served by an office	Average distance to an office (km)
Maximum	96 187	47	20.57
Minimum	497	1	1.85
Average	19 596	9.67	7.85
Median	14 219	5	8.7
Standard Deviation	20 450.58	10.94	5.98

Source: (Grešová, 2016)

Fig.1: Municipal offices providing services in the field of construction order competence in Nitra region



Source: (Grešová, 2016)

In the efficiency analysis we use four output variables representing performance of offices and one input variable expressing cost of services.

As a proxy for input we use governmental subsidy for municipal offices to cover costs connected with performing services in the field of construction order. This financial aid is provided in a fixed value of 0.93 Euro per one citizen having a permanent residence in the

municipality. Extra resources spent by municipalities above the received aid are not taken into account since they are not available.

Output variables were selected to measure typical services of municipal offices in the field of construction order as follows:

1. Construction permits and Certificates of occupancy – number of permits and certificates issued by one construction office per one year
2. Territorial decisions - number of territorial decisions issued by one construction office per one year
3. Additional construction permissions – number of additional construction permissions issued by one office per one year
4. Other decisions – statements and decisions issued by one construction office per one year (confirmation on existence or non-existence of building, decision on demolition, complaints, offences, change of the use purpose or owner of the building, small sources permission, small construction announcement, confirmation on the age of building, state construction supervision)

Descriptive statistics of used input and output variables are shown in Tab. 3 - 6.

Tab. 3: Input variable: Governmental subsidy (EUR)

Descriptive statistics	Governmental subsidy				
	2010	**2011**	**2012**	**2013**	**2014**
Maximum	89453.9	89453.9	89453.9	89453.9	89453.9
Minimum	462.2	462.2	462.2	462.2	462.2
Average	18501.9	18501.9	18501.9	18501.9	18501.9
Median	13223.7	13223.7	13223.7	13223.7	13223.7
Standard Deviation	19722.9	19722.9	19722.9	19722.9	19722.9

Source: (Grešová, 2016)

Tab. 4: Output variable: No. of Construction permits and Certificates of occupancy (pcs)

Descriptive statistics	Construction permits and Certifications of occupancy				
	2010	**2011**	**2012**	**2013**	**2014**
Maximum	994	1 011	735	997	1 020
Minimum	1	3	3	1	2
Average	145	156	156	165	177
Median	79	89	90	91	105
Standard Deviation	192.2	200	173.6	204.27	205

Source: (Grešová, 2016)

Tab. 5: Output variable: No. of Territorial decisions

Descriptive statistics	Territorial decisions				
	2010	**2011**	**2012**	**2013**	**2014**
Maximum	77	93	80	70	58
Minimum	0	0	0	0	0
Average	13	13	15	13	12
Median	4	4	6	5	4
Standard Deviation	17.4	20	19.2	17.4	15.10

Source:(Grešová, 2016)

Tab. 6: Output variable: No. of Additional construction permits

Descriptive statistics	Additional construction permits				
	2010	2011	2012	2013	2014
Maximum	46	38	42	36	54
Minimum	0	0	0	0	0
Average	8	9	8	9	10
Median	2	4	4	5	4
Standard Deviation	9.6	10.7	9.6	9.47	12.7

Source: (Grešová, 2016)

Tab. 7: Output variable: No. of Other decisions and statements

Descriptive statistics	Other decisions and statements				
	2010	2011	2012	2013	2014
Maximum	862	1 261	1 262	1 081	9 27
Minimum	4	5	1	3	7
Average	129	143	145	139	148
Median	73	88	69	77	70
Standard Deviation	160	216	226.8	196.15	189.82

Source: (Grešová, 2016)

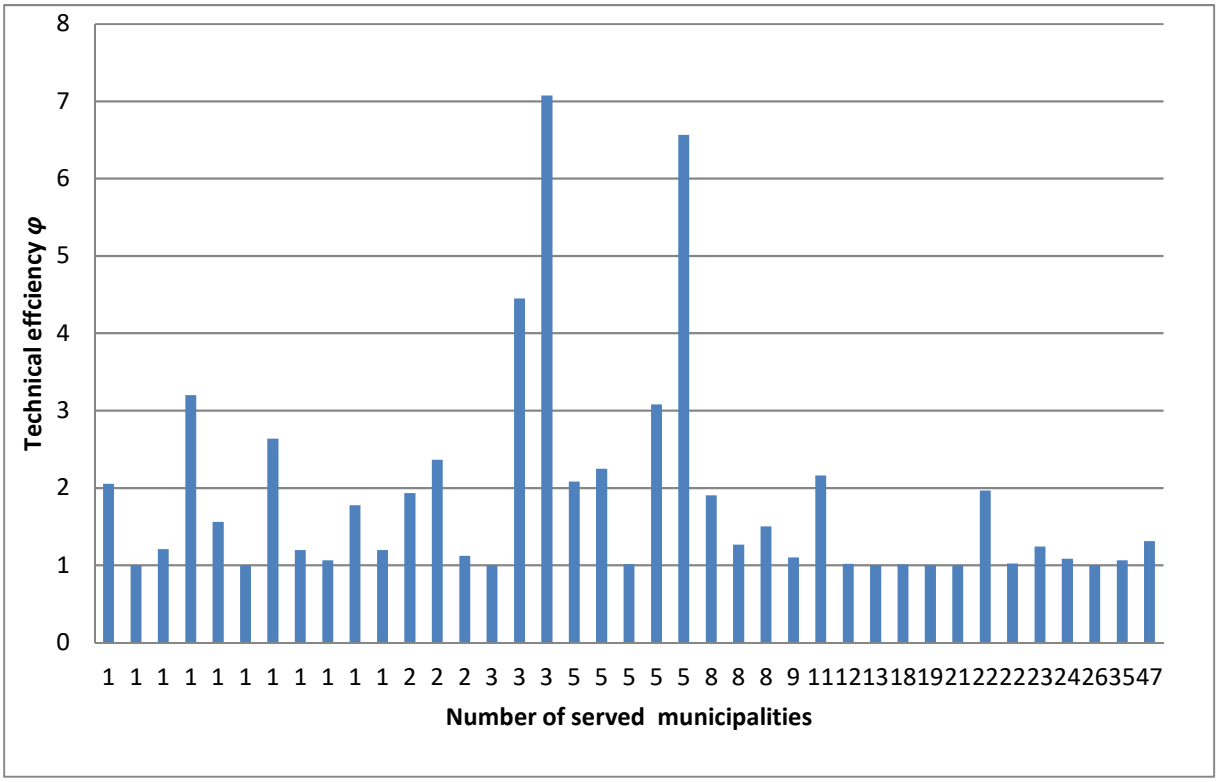
3 Results

In the first stage of efficiency analysis, measures of technical efficiency were calculated for each office and year, employing BCC DEA model. Variable returns to scale are assumed in this model, what means that all offices are benchmarked to the best performing offices of the similar scale size. As shown in Tab. 8, seven offices are technically efficient (Geomean BCC $\varphi = 1$) and 32 offices are inefficient (Geomean BCC $\varphi > 1$). Average technical efficiency score is $\varphi = 1.86$, what indicates that there is an 86% potential to increase output out of used resources. Association of estimated technical efficiency measures with number of municipalities served by one office (Fig. 2) indicates that highest inefficiency is exhibited by joint municipal offices serving for 3 to 5 associated municipalities. High inefficiency is also exhibited by non-associated offices. Average technical efficiency of joint municipal offices is 1.97, of non-associated offices 1.57. It suggests conclusion that on average non-associated offices are 40 percentage points more efficient than joint municipal offices. Statistical testing of technical efficiency measures distribution showed that the difference is not significant.

In the second stage of efficiency analysis we investigated potential impact of the breakup of a single joint municipal office into a number of smaller offices and merger of a number of non-associated offices into a joint municipal office.

Breakup analysis has been done ex-post on the example of two real offices of the sample, SOU Močenok+Hájske and SOU Zlaté Moravce, that within the examined period of splitted into smaller units. In Tab. 9 we depict situation before and after offices breakup.

Fig. 2: Technical efficiency and number of served municipalities by one office



Source: authors

The joint municipal office SOU Močenok+Hájske within existence in years 2010-2012 exhibited average efficiency score 1.12. Potentially it could improve its performance by 12%. CCR $\sum \boldsymbol{\lambda}^* = 2.24$ indicates that the office is operating in decreasing returns to scale region and its breakup into several offices can result in efficiency gain. In 2013 the SOU Močenok+Hájske broke into offices Hájske and Močenok. Both offices improved their efficiency in the first year significantly. In next two years the efficiency gain was lost.

Joint municipal office Zlaté Moravce exhibited in years 2010-2013 very good efficiency score 1.02. On the other hand very high CCR $\sum \lambda^* = 15.47$ indicated that office breakup may bring efficiency gain. In the first year it was confirmed by successor office Žitavany which became efficient. The other successor office Zlaté Moravce failed, probably due to still significant indicator of being in region of decreasing returns to scale, i.e. being too large.

Merger efficiency analysis has been performed on offices whose CCR $\sum \boldsymbol{\lambda}^* < \mathbf{1}$, and which are territorially close each other. In our sample 7 offices were classified as ones in increasing returns to scale. Four offices out of the 7 offices served for non-associated municipalities. Three offices served in neighbouring municipalities and were ideal candidates for merger.

In the first simulation run we analysed merger of offices in Andovce and Komoča. Estimated merger efficiency (ME = 1.25) implies that gain from merger will be positive.

Tab. 8: Technical efficiency measures of offices (2010-2014) and $\sum \lambda$ geomean

No.	Office	JMO	2010	2011	2012	2013	2014	Geomean	Geomean
			BCC φ	*BCC φ*	*BCC φ*	*BCC φ*	*BCC φ*	*BCC φ*	*CCR ∑λ*
1	Andovce	No	1,55	2,20	1,97	2,04	2,65	2,05	0,45
2	Bátorové Kosihy	Yes	1,79	1,48	1,79	1,81	2,90	1,90	3,26
3	Dvory nad Žitavou	No	2,21	2,26	2,96	2,14	4,03	2,63	1,77
4	Hajske	No	x	x	x	1,00	1,46	1,21	0,48
5	Hurbanovo	Yes	1,01	1,38	1,50	1,15	1,35	1,27	9,82
6	Ivanka pri Nitre	No	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**
7	Jasova	Yes	15,02	4,45	5,08	2,25	2,28	4,45	1,88
8	Klížska Nemá	No	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	0,45
9	Kolárovo	Yes	1,79	2,06	1,85	2,25	3,06	2,16	5,51
10	Komárno	Yes	1,26	1,00	1,00	1,00	1,26	1,10	18,39
11	Komoča	No	5,86	2,58	2,04	1,66	6,57	3,20	0,54
12	Kráľová nad Váhom	Yes	1,00	1,00	1,00	1,06	1,00	1,01	3,69
13	Krušovce	Yes	2,63	2,11	1,52	2,40	1,93	2,08	1,30
14	Leivce - A	Yes	1,14	1,45	1,38	1,54	1,11	1,31	17,70
15	Levice - N	No	1,08	1,44	1,02	1,23	1,23	1,19	20,43
16	Močenok	No	x	x	x	1,03	1,39	1,19	3,87
17	Mojmírovce	Yes	2,15	1,46	1,96	3,78	2,46	2,25	1,71
18	Nitra	Yes	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	49,71
19	Nitrianske Hrnčiarovce	Yes	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	12,86
20	Nové Zámky	Yes	1,76	1,56	1,65	1,37	1,22	1,50	33,98
21	Prašice	Yes	1,46	1,85	1,79	1,76	3,16	1,93	0,93
22	Solčany	Yes	1,00	1,00	1,09	1,00	1,00	1,02	5,75
23	SOU Močenok+Hajske	Yes	1,02	1,00	1,38	x	x	1,12	2,42
24	SOU Zlate Moravce	Yes	1,05	1,00	1,03	1,00	x	1,02	15,47
25	Strekov	Yes	3,91	1,52	2,94	1,94	2,16	2,36	2,33
26	Svodín	Yes	1,04	1,01	1,00	1,00	1,00	1,01	7,34
27	Šahy	Yes	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	**1,00**	4,57
28	Šaľa	No	1,27	1,00	1,00	1,02	1,04	1,06	12,05
29	Štúrovo	Yes	2,85	2,54	2,96	3,05	4,23	3,08	6,22
30	Šurany	Yes	1,09	1,17	1,19	1,26	1,53	1,24	25,94
31	Tešedíkovo	Yes	7,21	7,18	6,95	4,10	8,28	6,57	9,98
32	Topoľčany	Yes	1,13	1,12	1,00	1,07	1,00	1,06	26,45
33	Veľké Kosihy	Yes	1,00	2,49	2,08	1,73	1,03	1,56	0,59
34	Veľký Lapáš	Yes	1,00	1,00	1,00	1,00	1,00	**1,00**	**1,00**
35	Vráble	Yes	1,00	1,16	1,00	1,00	1,28	1,08	9,12
36	Zemianska Oľča	Yes	4,33	3,09	7,00	20,74	9,11	7,07	1,96
37	Zlaté Moravce	No	x	x	x	x	1,78	1,78	13,33
38	Želiezovce	Yes	2,09	2,12	1,88	2,07	1,70	1,96	14,15
39	Žitavany	No	x	x	x	x	**1,00**	**1,00**	**1,00**

JMO = Joint Municipal Office

Source: authors

In the second simulation run third municipality Dvory nad Žitavou has been merged with the two above. Merger efficiency in this case is still greater than unity (ME = 1.04) and indicates positive gain from the merger.

Tab. 9: Technical efficiency measures of selected offices (2010-2014) and geomean $\sum \lambda$

No.	Office	JMO	2010	2011	2012	2013	2014	Geomean	Geomean
			BCC φ	*BCC φ*	*BCC φ*	*BCC φ*	*BCC φ*	*BCC φ*	*CCR ∑λ*
4	Hajske	No	x	x	x	1,00	1,46	1,21	0,48
16	Močenok	No	x	x	x	1,03	1,39	1,19	3,87
23	SOU Močenok+Hajske	Yes	1,02	1,00	1,38	x	x	1,12	2,42
24	SOU Zlate Moravce	Yes	1,05	1,00	1,03	1,00	x	1,02	15,47
37	Zlaté Moravce	No	x	x	x	x	1,78	1,78	13,33
39	Žitavany	No	x	x	x	x	**1,00**	**1,00**	**1,00**

Source: authors

Conclusions

In this paper, we evaluated efficiency of municipal offices providing services in the field of construction order using techniques of Data Envelopment Analysis. Analysis has been performed on a sample of 37 offices taken from Nitra region within the period 2010 – 2014. In the sample there are 27 joint municipal offices, providing services for 366 associated municipalities, and 11 offices providing services for 11 non-associated municipalities. One joint municipal office is providing services on average for 13 associated municipalities.

Efficiency analysis was done in two stages. In the first stage we computed technical efficiency for each office and year, employing BCC DEA model. Results show that average technical efficiency score is φ = 1.86, what indicates that offices could improve their performance by 86% without necessary increase of used resources. Average technical efficiency of joint municipal offices is 1.97, of non-associated offices 1.57. It suggests conclusion that on average non-associated offices are 40 percentage points more efficient than joint municipal offices. Statistical testing of technical efficiency measures distribution showed that the difference is not significant.

In the second stage of efficiency analysis we investigated potential impact of the breakup of a single joint municipal office into a number of smaller offices and merger of a number of non-associated offices into a joint municipal office.

Breakup analysis has been done ex-post on the case of two real joint municipal offices of the sample. The case showed that breakup of offices operating in decreasing returns to scale region may have a short-term positive effect.

Merger efficiency analysis has been performed on offices operating in increasing returns to scale, i.e. whose CCR $\sum \boldsymbol{\lambda}^* < \mathbf{1}$, and which are territorially close each other. In our sample 7 offices were classified as ones in increasing returns to scale. Four offices out of the 7 offices served for non-associated municipalities. Three offices served in neighbouring municipalities and were ideal candidates for merger. In the first simulation run we analysed merger of 2 neighbour offices. Estimated merger efficiency (ME = 1.25) implies that gain from merger would be positive.

In the second simulation run third municipality has been merged with the two already merged. Merger efficiency score in this case was still greater than unity (ME = 1.04) and indicates positive gain from the merger.

Results show that there are some performance differences between joint municipal offices and offices of non-associated municipalities. Analyses performed on limited sample size taken from one region cannot reveal systematic impact of the 'being – not-being associated office'. Results presented in this paper are outcomes of the ongoing project, in which new data will be available for another region of Slovakia. Authors expect that result using new

data will be more robust and reliable. Analysis presented in this paper showed that used methodology is a suitable tool for research in the field of public services provision on local level.

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PUBLIC ADMINISTRATION AND SERVICES IN RELATION TO FISCAL DECENTRALISATION AND GOOD GOVERNANCE

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Abstract: *Changes in the management of public administration and requirements for the increase in its efficiency created assumptions for the development of novel concepts of public administration, which may lead to the increase in efficiency of the provision of public services and implementation of public authority. Crucial is the re-definition of the workings of the public sector as the provider of public services and the relation between the public and the private sector with respect to the procurement of public services. Based on theoretical and empirical data, the paper aims to evaluate public administration and services in selected EU countries, with emphasis on good governance and fiscal decentralisation. The paper focuses on the evaluation of fiscal decentralisation of revenue and expenditure and on the comparison of selected indicators of good governance in terms of Worldwide Governance Indicators (Voice and Accountability; Government Effectiveness and Rule of law and Control of Corruption) over the period 2006 - 2016. Applying correlation analysis, correlations between fiscal decentralisation and indicators of good governance in selected EU countries are observed. Results of correlation analysis proved a weak correlation between fiscal decentralisation and indicators of good governance. By contrast, a strong mutual correlation was proved between the indicators of good governance.*

Keywords: *Public administration, Public services, Fiscal decentralisation, Good governance.*

JEL Classification: *H11, H77, H83.*

Introduction

Demands on the efficiency of public administration and the quality of procured services brought about changes in the management of public administration. The individual approaches to the management of public administration differ among countries depending on the bases of their reforms and the strategic steps defined to reach the desired changes. Experience from abroad shows that administrative reforms pertain mainly to reduction in costs on public administration or its segments, improvement of the decision-making structure through centralisation, or conversely decentralisation and deconcentration, and implementation of novel methods and strategies for an increased flow of operations of public administration and the procurement of public services of higher quality. The new form of management of public administration combines several features which so far have been associated merely with managers in the business sector. These include mainly an efficient use of resources to attain a high quality of services provided, competitive environment between the public and the private sector in the provision of services, and a market-orientated approach, where citizens are perceived as consumers which need to be satisfied and who decide about the purchase of services (Půček, Ochrana, 2011; Stejskal et al, 2017; Wright, Nemec, 2003). In relation to this, a number of new concepts for public-administration management and the improvement of public services have been developing. These include, for instance, Public management, New public management, Good governance, New public services or E-governance.

Based on theoretical and empirical approach, the paper aims to evaluate public administration and services in selected EU countries, focusing, in particular, on good

governance and fiscal decentralisation. More closely is evaluated fiscal decentralisation of revenue and expenditure and selected indicators of good governance (Voice and Accountability; Government Effectiveness; Rule of Law and Control of Corruption) over the period 2006 - 2016. Further, by means of correlation analysis, correlations between fiscal decentralisation (of revenue and expenditure) and indicators of good governance are observed in selected EU countries.

1 Statement of a problem

The character of the management of public administration has been evolving over the past centuries and has undergone several changes. Crucial is mainly the re-definition of the workings of the public sector as a provider of public services, and the re-definition of the relation between the public and the private sector in terms of the procurement of public services. The area of reforms of the management of public administration and the public sector is addressed by a number of authors (Puček, Ochrana 2011; Osborne, 2002; Pollit, Bouckaert, 2004).

1.1 Approaches to public-administration management and for the development of public services

New concepts of governance and management facilitate the provision of novel or improved public services which better satisfy consumers' needs. Consequently, this gives rise to the development of new concepts of public administration and public sector, which may result in increased efficiency in the provision of public services and implementation of public authority, in increased productivity and decreased paperwork- and transaction-related costs.

One such concept is **Public administration**, when public administration is understood traditionally, namely as a set of bodies to ensure executive power of the state and services for the public. Another concept is **Public management**, a modern concept in public administration. It adopts features from the theory of management and it is based on the differences between the administration and the management in public administration, with the aim to increase the efficiency of performance of public administration and the quality of public services. The implementation of improved management of public administration with focus on public services is mainly connected with **New public management (NPM)**, dealt with by Hood (1991); Lane (2000). Basically, this comprises sets of best practices in managerial approaches and skills which proved effective in the private sector, which also are being increasingly implemented in the public sector in the sense of 3E, namely increasing efficiency, effectiveness and economy of public services. In late 1970s, a novel managerial approach towards public administration is born as criticism of an obsolete form of management of public administration, where a citizen as a customer of public administration has a central place. In practice, this approach is referred to as **Reinventing government**. A theory known as **New Public Service** can be placed in this approach, which responds to weak points of the NPM approach and advises such a form of governance where civil servants play a key role who fulfil citizens' interests and serve them in satisfying their needs (Denhardt, Denhardt, 2000; Stejskal et al., 2017). **E-Governance** represents a democratic concept of the management of public administration, based on the use of ICT so as to deliver e-services and to involve citizens in the decision-making process.

New methods of management open up possibilities of increasing the efficiency of public administration and bring alternative approaches in the provision of public services. As the bureaucratic system, based on the managing relationship between the public and the private sector, failed to prove positive in the provision of public services, nor the system based on a competing relationship between sectors, 'public governance' and different forms of partnership between the public and the private sector have become the new trends.

1.1.1 Good governance and fiscal decentralisation

Good governance represents good administration and is the ideological platform of the New Public Management. The idea of Good Governance describes the high-quality and properly functioning public administration with an integrated element of subsidiarity, allowing the participation of citizens and respecting democratic values and rules of a modern state. Moreover, it highlights the potential of the combination of different management approaches to public administration and public services (Ladi, 2008; Roy, Tisdell, 1998; Zanger, 2000). The concept of Good Governance is one of the current trends of public administration modernization, but Good Governance is not at the national or international level legislatively defined. World Bank (2017) defines Good Governance in the project 'Worldwide Governance Indicators' (WGI). Governance here is defined as traditions and institutions by which is exercised the power in the country. Good Governance is described as a set of three interrelated aspects, which include: 1) Process of selection, monitoring and replacement of governments, 2) ability of the government to effectively formulate and implement suitable policies and 3) respect of citizens and the state to institutions that determine the socio-economic environment in the country. According Kaufmann, Kraay, Mastruzzi (2010) or World Bank (2017), it is possible to distinguish between six dimensions/indicators of good governance, namely:

- Voice and Accountability (VA) – captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
- Political Stability and Absence of Violence/Terrorism (PV) – capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.
- Government Effectiveness (GE) – captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
- Regulatory Quality (RQ) – captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
- Rule of Law (RL) – captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
- Control of Corruption (CC) – captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.

One of the reform tendencies for the development of public services is **decentralisation of public administration.** However, continuous changes to framework conditions affecting the processes of decentralisation lead to a distorted definition of decentralisation by many authors. Many authors, such as Aristovnik (2012); Ebel, Yilmaz (2002); Finžgar, Oplotnik (2013); Neubauerová, Tomčíková (2016); Szarowská (2015) concur that decentralisation, specifically fiscal decentralisation, can be considered a pillar of public administration. Fiscal decentralisation contributes mainly to increased efficiency and economy in the provision of public services at the local level, but also increased quality of public services, as expenditure are more in line with local priorities and preferences, which motivates local governments to improve the deployment of resources, leading to higher transparency and responsibility for

allocated expenditure. Sow, Razafimahefa (2015) explore the impact of fiscal decentraliation on the efficiency of public service delivery. The findings indicate that fiscal decentralisation can improve the efficiency of public service delivery but only under specific conditions. The decentralisation process requires adequate political and institutional environments. A sufficient degree of decentralisation of expenditure seems necessary to obtain favourable outcomes and decentralisation of expenditure needs to be accompanied by sufficient decentralisation of revenue. Absent those conditions, fiscal decentralisation can worsen the efficiency of public service delivery. Stiglitz (1988**)** then points out to the disadvantage of decentralised procurement of public services in relation to their quality.

2 Methods

In the paper, data from OECD Fiscal Decentralisation Database and the World Bank, with the use of Worldwide Governance Indicators (WGI) from the period 2006 - 2016 were used. The selected group comprises 21 EU countries (Austria-AT, Belgium-BE, Czech Republic-CZ, Denmark-DK, Germany-DE, Estonia-EE, Greece-EL, Spain- ES, Finland-FI, France-FR, Italy-IT, Latvia-LV, Luxembourg-LU, Hungary- HU, Ireland- IE, Netherlands-NL, Portugal-PT, Slovenia-SI, Slovakia-SK, Sweden-SE, United Kingdom-UK). The countries have been selected based on an intentional selected and available data. For the sake of comparison of fiscal decentralisation, data from OECD Fiscal Decentralisation Database (consolidated expenditure and revenue) are used as the average of 2006 - 2016. Fiscal decentralisation of revenue (FD rev.) is expressed as consolidated government revenue as percentage of total general government revenue (consolidated) and fiscal decentralisation of expenditure (FD exp.) as consolidated government expenditure as percentage of total general government expenditure (consolidated), (OECD, 2018).

Evaluation of Good Governance in the selected countries is based on the comparison of the level of public administration according to the composite index of Good Governance. Each of the aggregate Worldwide Governance Indicators (WGI) i.e. Voice and Accountability - VA; Government Effectiveness - GE; Rule of Law – RL and Control of Corruption – CC becomes normalized values in the interval from -2.5 (worst result) to 2.5 (best result). Another expression is by means of an index, when the ranking of countries in Percentile Indicators ranges between 0 – 100 (0 corresponds to the lowest and 100 to the highest ranking). In observing the relation between fiscal decentralisation (revenues and expenditure) and aggregate good governance indicators (Voice and Accountability; Government Effectiveness; Rule of Law and Control of Corruption), correlation analysis was applied and normalized values in the interval from -2.5 to 2.5 as the average of the period 2006 - 2016 (World Bank, 2017). The correlation analysis aims to determine the intensity of the linear correlation between X and Y. These are observed in ***n*** statistical units, and the results are demonstrated in point diagram, where each observed pair (x_i, y_i) is shown as a point in rectangular coordinates, with ***X*** located on the horizontal axis and ***Y*** on the vertical axis. The points then comprise a set which demonstrates characteristic features of correlations of both areas (Lynch, 2013). Correlation analysis is also used in the research by, for instance Slavata (2017). Correlation analysis for the given type of data was calculated by applying the **Pearson's correlation coefficient (r)**. It reaches values within the range of <-1, 1>, when the sign indicates the direction of correlation (positive in direct and negative in indirect) and its absolute value the strength of linear correlation. The more the value reaches 1 or -1, the stronger the correlation. Pearson r correlation is the most widely used correlation statistic to measure the degree of the relationship between linearly related variables. The Point-biserial correlation is conducted with the Pearson correlation formula except that one of the variables is dichotomous. The following formula is used to calculate the Pearson r correlation:

$$r = \frac{N \sum xy - \sum (x)(y)}{\sqrt{N \sum x^2 - \sum (x^2)][N \sum y^2 - \sum (y^2)]}} \quad (1)$$

r = Pearson r correlation coefficient; N = number of value in each data set; ∑xy = sum of the products of paired scores; ∑x = sum of x scores; ∑y = sum of y scores; ∑x2= sum of squared x scores; ∑y2= sum of squared y scores.

The more the value reaches 1 or -1, the stronger the correlation. To express the strength of linear correlation, the **coefficient of determination** was used: (**r^2**) the square root of the correlation coefficient (r) expressed in per cent. The coefficient of determination also demonstrates the appropriateness of the model and denotes the part of variability *Y* explainable by the model (Kendall, Gibbons, 1990). The calculations in the following part are the output of the SPSS Statistics 24.0 software.

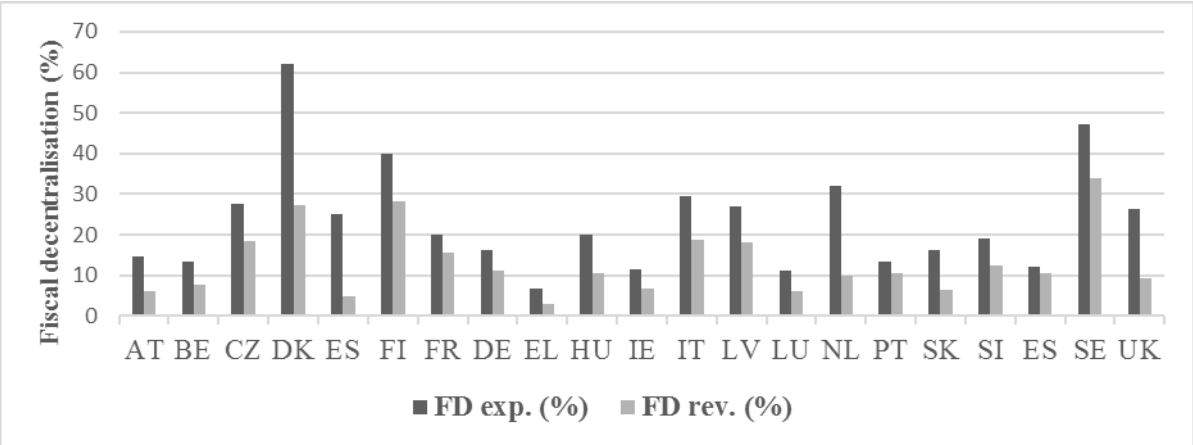
3 Problem solving

Evaluation of public administration and public services concentrates on fiscal decentralisation and good governance by means of Worldwide Governance Indicators (WGI) in selected EU countries in the period 2006 - 2016. Next, correlations between fiscal decentralisation and good-governance indicators are found through correlation analysis.

3.1 Significance of fiscal decentralisation for the development of public services

The extent of centralisation (decentralisation) of public administration is mostly expressed as the share of expenditure of central, regional and local administration on total expenditure of public administration or GDP. The World Bank (2018) divides indicators of fiscal decentralisation into main indicators and indicators based on the composition of revenue and expenditure of lower (decentralised) government levels, and indicators based on revenue and grants of lower government levels. In the present case, fiscal decentralisation is expressed as consolidated government revenue as percentage of total general government revenue (consolidated) and consolidated government expenditure as percentage of total general government expenditure (consolidated), according to OECD (2018). Comparison of fiscal decentralisation (of revenue and expenditure) in the selected EU countries is seen in Fig. 1.

Fig. 1: Comparison of fiscal decentralisation over 2006 - 2016 (%)



Note**: FD (exp**.) - Fiscal decentralisation of expenditure; **FD (rev.)** - Fiscal decentralisation of revenue.

Source: Authors according OECD (2018)

Fig. 1 proves that the highest fiscal decentralisation of expenditure over the period 2006 - 2016 is found in Scandinavian countries. The dominant position is occupied by Denmark with 62%, followed by Sweden with 47% and Finland with 40%. By contrast, the lowest fiscal

decentralisation of expenditure is found in Greece (approximately 6%), and a low level of decentralisation of expenditure is also seen in Luxembourg and Ireland (approximately 11%). In all observed countries, a significantly low fiscal decentralisation of revenue was found, with the lowest values found in Greece (around 3%) and Estonia (around 5%). Also other countries show a low fiscal decentralisation of revenue (around 6%), mainly Luxembourg, Austria, Slovakia, Ireland and Germany. By contrast, the highest fiscal decentralisation is, again, seen in Scandinavian countries (SE - 34%; DK and FI - 28%).

The high or low rate of decentralisation on the area of a given countries is affected by multiple factors, namely economic, demographic, historical, cultural or geographic. An effective fulfilment of the essence of fiscal decentralisation is at the end of the day dependent on the goals defined by the respective government. The results are also corroborated by other research dealing with the European dimension of fiscal decentralisation, for example Aristovnik (2012); Finžgar, Oplotnik (2013); Sow, Razafimahefa (2015); Szarowska (2015).

3.2 Indicators of good governance in the selected EU countries

Worldwide Governance Indicators (WGI) reflect the system of management of public administration and the quality of public services in the individual countries. Kaufmann, Kraay, Mastruzzi (2010) summarise the methodology of the Worldwide Governance Indicators (WGI) project, and related analytical issues. The WGI cover over 200 countries and territories, measuring six dimensions of governance starting in 1996: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. For the purpose of this study, the following aggregate indicators WGI were selected: Voice and Accountability, Government Effectiveness, Rule of Law and Control of Corruption in selected EU countries in years 2006, 2011 and 2016. The evaluation of indicators in the individual countries ranges between 0 - 100, with 0 representing the lowest and 100 the highest order. The comparison of Worldwide Governance Indicators is seen in Tab. 1.

The best system of managing and evaluation of public administration and public services over the observed period is seen in Scandinavian countries. Conversely, the worst system of management of public administration and public services is characteristic of Slovakia and Latvia. Should all indicators of good governance be considered, it may be said that **voice and accountability**, apart from Scandinavian countries, also Luxembourg and the Netherlands reach the highest (best) results in 2006, 2011 and 2016 (about 99). A strong participation of population in the administration of public matters and adherence to civil rights is also connected to the system of management in other observed countries, mainly in Austria, Belgium, Germany or Ireland (about 92 - 95). Conversely, the worst evaluation of voice and accountability over the observed period is characteristic of Latvia, Slovakia, Hungary and Greece (about 70). Another indicator, **government effectiveness**, by WGI reflects the perception of the quality of public services and the rate of their independence from political pressure. It was compiled by the World Bank (2017) from 441 variables and it is one of the best elaborated indicators drawing from a large number of source data. Some of the input indicators are, for instance, the quality of infrastructure, of different levels of education in the country, of the equipment of technical infrastructure or of bureaucracy. From the countries observed, the best results of government effectiveness after Scandinavian countries are reached by mainly the Netherlands, Austria, Belgium and Luxembourg. The worst results of government effectiveness, by contrast, (about 65 - 72) and quality of public services are seen in Italy, Greece or Hungary.

In terms of the **rule of law**, Scandinavian countries occupy the dominant position due to their elaborate system of legislature (reaching almost the level 100), followed by Austria, Luxembourg or the Netherlands (around 97). The worst legal system and adherence to legal norms and effectiveness of the judicial system is then seen in Greece, Italy, but also Slovakia

(ranging from 60 - 70). In connection to the evaluation and management of public administration and services, it is necessary to also consider the features of openness and transparency and the rate of occurrence of corruption and its tackling. The indicator **control of corruption** reflects the perception of exercising of public authority for private benefit, including petty as well as major forms of corruption. Out of all countries observed, the worst level of control of corruption is seen in Greece, Latvia and Slovakia (around 60 - 68). By contrast, the best evaluation of corruption and the most elaborate system of checks against corruption is seen in Scandinavian countries (99 - 100), which is related to a high prestige of public administration, quality of public services, worked-out legislature and implemented control mechanisms. The countries following in the best evaluation of checks of corruption are Luxembourg and the Netherlands (95 - 98), two highly developed countries with a high prestige of public administration and public services provided.

Tab. 1: Comparison of aggregate indicators WGI in selected EU countries

	Voice and Accountability			**Government effectiveness**			**Rule of Law**			**Control of Coruption**		
	2006	**2011**	**2016**	**2006**	**2011**	**2016**	**2006**	**2011**	**2016**	**2006**	**2011**	**2016**
AT	94	95	93	96	93	92	99	97	96	95	90	91
BE	93	93	96	94	94	87	89	90	89	89	92	92
CZ	77	80	81	84	78	80	77	82	84	68	68	68
DK	100	97	98	100	99	99	100	99	98	100	100	99
EE	84	87	89	84	82	83	88	85	87	82	82	85
FI	97	96	99	99	100	97	99	100	99	100	99	100
FR	92	89	82	92	88	90	90	90	89	92	91	90
DE	93	93	95	93	91	94	95	92	91	93	93	94
EL	78	73	69	72	68	63	77	67	59	68	55	57
HU	79	73	57	78	72	69	83	73	70	74	69	61
IE	95	92	94	89	89	88	94	96	90	92	92	93
IT	88	75	79	65	66	72	62	63	61	71	64	60
LV	74	70	74	74	73	79	69	72	80	69	65	67
LU	100	99	100	90	95	93	93	98	94	94	98	98
NL	99	97	99	95	97	96	95	97	97	96	97	95
PT	90	85	86	79	78	86	80	81	85	81	84	81
SK	76	76	75	79	76	76	66	68	75	69	65	63
SI	85	82	77	80	79	84	78	83	83	82	79	77
ES	86	83	81	77	82	83	88	86	81	85	82	69
SE	100	100	100	96	99	95	98	100	100	99	99	99
UK	84	92	91	93	92	93	96	92	92	93	93	94

Source: Authors according World Bank (2017)

Also other research related to economic growth and effective management of public administration emphasise the importance of corruption checks and its measuring in the European and international dimension. Rohwer (2009), as a case in point, compares measuring corruption using Corruption perceptions index (CPI), carried out by Transparency International, and the indicator control of corruption in terms of a comprehensive evaluation of Worldwide Governance Indicators (WGI), observed by the World Bank. Linhartová, Volejníková (2015) show that corruption has an effect on reducing economic performance and the elimination of corruption in certain regions may be the key to the elimination of regional economic disparities and thus increase the economic performance of the state. The evaluation and measurement of corruption is also dealt with by Kašík (2012). Other research

deals with the impact of corruption on economic growth in V4 countries, see Linhartová, Stejskal (2017).

3.3 Correlation of fiscal decentralisation and indicators of good governance

In this section, correlations between fiscal decentralisation and indicators of good governance are observed in selected EU countries over the period 2006 - 2016, by means of correlation analysis. Results of correlations using Pearson correlation coefficient (r) and the coefficient of determination (r^2) is seen in Tab. 2.

Tab. 2: Correlation of fiscal decentralisation and WGI indicators over the period 2006 - 2016 in selected EU countries

Correlation FD and WGI	CC		GE		RL		VA	
	r	r^2	r	r^2	r	r^2	r	r^2
FD exp.	0.442*	0.195	0.470*	0.220	0.387	0.149	0.236	0.056
FD rev.	0.336	0.113	0.381	0. 145	0.291	0.085	0.140	0.019

Note: *VA - Voice and Accountability; GE- Government effectiveness; RL- Rule of Law; CC- Control of Coruption*; *Correlation is significant at the 0.05 level (2-tailed)

Source: Authors calculation

A moderately strong, statistically significant correlation is observed between fiscal decentralisation of expenditure (FD exp.) and government effectiveness ($r = 0.470$ at $p < 0.05$ and $r^2 = 0.220$, i.e. 22%). Another moderately strong statistically significant correlation was observed in fiscal decentralisation of expenditure (FD exp.) and control of corruption, where the Pearson correlation coefficient reaches 0.442 at $p < 0.05$ and the coefficient of determination is 0.195 = 19.5%. A weak correlation was found between fiscal decentralisation of expenditure (FD exp.) and rule of law ($r = 0.387$ at $p < 0.05$ and $r^2 = 0.149$, i.e. 14.9%.) and between fiscal decentralisation of expenditure (FD exp.) and voice and accountability ($r = 0.236$ at $p < 0.05$ and $r^2 = 0.056$ i.e. 5.6%). A weak correlation was found also between fiscal decentralisation of revenue (FD rev.) and control of corruption ($r = 0.336$ at $p < 0.05$ and $r^2 = 0.113$ i.e. 11.3%) and between fiscal decentralisation of revenue (FD rev.) and government effectiveness ($r = 0.381$ at $p < 0.05$ and $r^2 = 0.145$ i.e. 14.5%). Tab. 2 further shows a very weak correlation in selected EU countries between fiscal decentralisation of revenue (FD rev.) and rule of law ($r = 0.291$ at $p < 0.05$ and r^2 0.085 = i.e. 8.5%), but also between fiscal decentralisation of revenue and voice and accountability ($r = 0.140$ at $p < 0.05$ and $r^2 = 0.019$ i.e. 1.9%).

In addition, correlations between WGI indicators in the correlation matrix are shown (Tab. 3).

Tab. 3: Correlation matrix of indicators of good governance in years 2006 - 2016

Correlation	CC	GE	RL	VA
Control of Corruption (CC)	1			
Government Effectiveness (GE)	0.974**	1		
Rule of Law (RL)	0.973**	0.973**	1	
Voice and Accountability (VA)	0.876**	0.909**	0.904**	1

Note: **Correlation is significant at the 0.01 level (2-tailed)

Source: Authors calculation

In all observed WGI indicators a strong, statistically significant correlation was proved, which can be explained by implemented mechanisms and requirements for effective functioning of the system of public administration in the given countries. It is the correlation between: 1) Control of Corruption and Government Effectiveness ($r = 0.974$ at $p < 0.01$); 2) Control of Corruption and Rule of Law ($r = 0.973$ at $p < 0.01$); 3) Control of Corruption and Voice and Accountability ($r = 0.876$ at $p < 0.01$); 4) Government Effectiveness and Rule of

Law ($r = 0.973$ at $p < 0.01$); 5) Government Effectiveness and Voice and Accountability ($r = 0.909$ at $p < 0.01$) and 6) Rule of Law and Voice and Accountability ($r = 0.904$ at $p < 0.01$).

4 Discussion

The comparison of the indicators of good governance, according to Worldwide Governance Indicators (WGI), in the selected EU countries showed that the best evaluation of public administration and services from the set of 21 EU countries from the period 2006 - 2016 is seen in Scandinavian countries. Mainly Greece, Hungary, Slovakia, Latvia and Italy can be considered the worst countries in terms of the evaluation of the selected countries regarding the indicators of good governance. As seen in some pieces of research already carried out, the system of managing public administration in relation to good governance and fiscal decentralisation also has an impact on the efficiency and quality of public services.

Approaches to the evaluation of public administration are discussed by many authors. Boivard, Loffler (2003) provide an overview on the evaluation of the quality of public governance and services and examine governance and 'good governance' and the dimensions of 'good public governance'. Their results demonstrate that there is currently a widespread interest in measuring not only the quality of services but also improvements in quality of life and improvements in governance processes and how the measurement of good governance can be encouraged, e.g. through awards, inspections, setting funding conditions and empowering stakeholders to demand better evidence. La Porta et al. (1999) assess empirically the determinants of the government performance using measures of government intervention, public sector efficiency, public good provision, size of government, and political freedom. Authors find that the larger governments tend to be the better performing ones and the importance of (reasonably) exogenous historical factors in explaining the variation in government performance across countries sheds light on the economic, political, and cultural theories of institutions. Other authors e.g. Gani, Duncan (2007) present an index of governance performance for Cook Islands for the period 1985 to 2005 and measure three dimensions of governance (rule of law, government effectiveness, and regulatory quality) using various indicators. Results show that the stagnation in the post 1999 period is largely attributable to increased political instability and rising corruption and that the governance index provides a useful basis from which to monitor future changes in governance performance and quality services. Mauro (1995) analyses data set consisting of subjective indices of corruption, the amount of red tape, the efficiency of the judicial system, and various categories of political stability for a cross section of countries. Results show that corruption is found to lower investment, thereby lowering economic growth.

The present results prove a weak correlation between fiscal decentralisation (of revenue and expenditure) and indicators of good governance in the selected EU countries (Tab. 2). A strong, statistically significant correlation is observed between fiscal decentralisation of revenue and expenditure, when the fiscal decentralisation of revenue is affected by fiscal decentralisation of expenditure from 70%. In literature, links can be found between fiscal decentralisation, management system and the efficiency of public services in the countries. Sow, Razafimahefa (2015) explore the impact of fiscal decentralisation on the efficiency of public service delivery. The findings indicate that fiscal decentralisation can improve the efficiency of public service delivery. A sufficient degree seems necessary to obtain favourable outcomes decentralisation of expenditure needs to be accompanied by sufficient decentralisation of revenue. Absent those conditions, fiscal decentralisation can worsen the efficiency of public service delivery. De Mello, Berenstein (2001) show that fiscal decentralisation - the assignment of expenditure and revenue mobilisation functions to subnational level of government- is associated with various indicators of governance, such as corruption, rule of law, and government effectiveness. Unlike previous studies in the decentralisation/ governance literature, which focus primarily on expenditure-based measures

of decentralisation, the results reported in this paper show that the relationship between decentralisation and governance depends on how subnational expenditure are financed. The higher the share in total subnational revenue of non-tax revenue and grants and transfers from higher levels of government, the stronger the association between decentralisation and governance. Altunbaş, Thornton (2011) presented that fiscal decentralisation stresses the potential for both positive and negative effects on governance in a country. The authors find that countries in which a larger share of fiscal revenue and expenditure are located at the level of subnational governments appear to be less corrupt. The authors find that the beneficial impact of fiscal decentralisation on corruption is mitigated in the presence of mechanisms enforcing vertical administrative decentralisation. The results indicate that fiscal decentralisation appears to reduce corruption even in countries in which there is a high degree of political representation.

Conclusion

Demands associated with the efficiency of public administration and the quality of public services are also reflected on in the approaches to the management of public administration. New management of public administration combines a multitude of features which have been attributed to managers in the business sector so far, thus a focus on an effective use of resources, attainment of high quality of provided services and competitive environment between the public and private sector in terms of service delivery. The paper dealt with the evaluation of fiscal decentralisation and indicators of good governance over the period 2006 - 2016. The best evaluation of public administration and services from the selected set of 21 EU countries was found in Scandinavian countries. On the contrary, it was Greece, Hungary, Slovakia, Latvia and, with the exception of Voice and Accountability, Italy, which had the worst results of the evaluation. The comparison of fiscal decentralisation (of revenue and expenditure) proved different potential of the respective countries for the development and procurement of public services. Similarly to the evaluation of indicators of good governance, Scandinavian countries take a dominant position in the values of fiscal decentralisation and in the basis for the development of public services, while the lowest values in fiscal decentralisation (of revenue and expenditure) in the observed countries is seen in Greece. The relation between fiscal decentralisation and indicators of good governance in the selected EU countries in years 2006-2016 proved a weak correlation between fiscal decentralisation and indicators of good governance. By contrast, a strong mutual correlation was proved in the selected EU countries between indicators of good governance. Only selected forms of evaluation and management of public administration and public services were selected in the paper. Forms of evaluation and alternative approaches in the provision of public services represent a vast area of interest, nevertheless, which may serve as a theme for further research.

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RESPONSIBLE BEHAVIOR OF BUSINESS: APPROACHES TO UNDERSTAND THE COOPERATION BETWEEN THE PRIVATE AND PUBLIC SECTOR

Javid Huseynli

Abstract: *This paper covers the key concepts of social responsibility, basic terms and approaches to the understanding of the content of corporate social responsibility. Moreover, the key principles and criteria of the socially responsible of company. Paper covers the fundamental conceptual basis of the social responsibility and then discusses the most important five approaches of social responsibility. These approaches are defining the way companies are willing to function. Moreover, the paper discusses increasing influence of the corporate sector in the national economy which is an important aspect in the socio-economic development. Thus, ensuring sustainable and balanced development is necessary between all economic actors. In overall could be said that no matter what approach is chosen the goal should be long-term rather than short-term. In conclusion the list demonstrated the fundamental requirements or stakeholder expectation in order to be part of the society and develop competitiveness, in overall to have an inclusive economy.*

Keywords: *social responsibility, sustainable development, social development, integration, strategy change, inclusive economy.*

JEL Classification: *D22, H42.*

Introduction

If we set ourselves the task to form a kind of top ten socio-economic problems, the most actively discussed topic is in the field of management and corporate governance by economists, experts, social scientists, entrepreneurs, representatives of the government due to increasing problems of social responsibility which is the part of the sustainable development. This is evidenced by numerous publications, conferences, round tables, studies conducted in recent years by government agencies or private sector. Throughout the twentieth century, discussions about business functions, its role in the development of society, the interaction of society and business, government and business, and inconsistency of their interests have been in the upward trend. However, the debate about whether to play the role of business builder or a 'voracious locusts', 'whether the company can make a profit and at the same time to make the world better', 'whether the social responsibility altruistic beneficent or compromise, leading to prosperity' did not lose its relevance, but is of particular importance (Falk, Heblich, 2007a). Together with the formation of socially oriented market economy model, the aggravation of the socio-economic and environmental issues, as well as the expansion of the companies' experience of implementing socially responsible behavior changes of the contents and limits of social responsibility of business. No coincidence that in the fifties of XX century a systematic scientific analysis of the phenomenon of the socially responsible behavior of companies had begun.

1 Understanding the content and boundaries

1.1 Stages of Development: Business and Society

Socially responsible behavior arises at a certain stage of development of business and society and reflects the level of maturity. Speeding up this process and its formalization,

coercion a direct path to the opposite result. This process must be able to manage stimulation, create interest and encourage. It is no accident the most active social responsibility of business ideas began to take shape and be implemented in the US and the UK - in countries with a liberal market economy model. In countries with a social market economy model developed social policies require companies to fulfill certain social obligations. Change in the balance between the state, citizens and businesses in terms of social commitment towards reducing the state's role in solving social problems of the society tend to raise social responsibility as a business and property of the citizens. The movement towards socialization, humanizations and greening the economy - a process objectively determined and inevitable.

Currently in the United States and many Western European countries have accumulated a lot of experience of socially responsible behavior of companies; formation of a certain system of views on the social role of business in the modern world; in the content, principles and forms of socially responsible behavior of companies; to develop uniform standards for socially responsible behavior of the company. All this allows us to speak about the process of formation CSR concept (Corporate Social Responsibility, CSR). The concept of corporate social responsibility is becoming an important element of corporate governance, an important aspect of the policy of large companies.

For example, if to take a look to emerging countries, interest in the problems of the socially responsible behavior of companies have been occurring only since 2000. Such as, on the one hand the macroeconomic stability, sustainable economic growth, the needs of a growing economy, its modernization and integration into the world economy, on the other a demographic crisis, deep social imbalances and conflicts, the neglect of social sphere and poor social infrastructure. Many authors rightly point out that the interest in the issue of the socially responsible behavior of companies is caused by the need for the new model of social policy, involving the redistribution of social responsibility from the state to the business and from the business to the society.

As Russia is one of the biggest emerging markets in the world economy, the great attention to the study of the content and scope of corporate social responsibility is being paid to regarding the CSR challenges of becoming a national model by the Russian Managers Association (RMA), the Russian Union of Industrialists and Entrepreneurs (RSPP), and other professional associations. The studies have been conducted in Russia (international and regional), the purpose of which was to study the relationship of society, business and government to social responsibility; study their understanding of the content and boundaries of corporate social responsibility; their expectations of socially responsible behavior of companies; study of social practices of Russian and foreign companies working in Russia (USAID).

The results of research, both theoretical and applied, indicate that the existence of different approaches to the understanding of the content and boundaries of corporate social responsibility vary on the role of business in the development of society (Blagov, 2006). According to the Blagov's opinion, the current state of the theory and practice of socially responsible behavior of companies allows us to consider the concept of corporate social responsibility not as a theory but rather as a reflection of a large array in economics research, management, sociology, business ethics. The multiplicity of the original theories and approaches to the understanding of the content and corporate social responsibility boundaries, terminological uncertainty cast doubt on the assertion of the completion of the formation of the corporate social responsibility concept, doing the actual ordering of the famous viewpoints and conceptualization of the issues.

Currently, there are still many issues that require study and discussion in the scientific and business communities. Among them are the following:

- *what is meant by corporate social responsibility; which company is socially responsible; why companies are socially responsible;*
- *how to relate to the objective function of a commercial firm, understood as maximizing profits, and social responsibility; how to relate to the interests of shareholders, the company's management and the principles of socially responsible behavior of the company, whether it is possible to find a compromise between the two;*
- *as a socially responsible behavior affects the company's core business (business value added); any mechanisms for implementing CSR can make a business more efficient;*
- *what are the content, the main directions, and mechanism of realization of the social policy of the firm;*
- *why society and the state are interested in the socially responsible behavior of company at all times; what is the social impact on society (social value added); whether the government should encourage socially responsible behavior by companies; if so, how;*
- *Are there national peculiarities in the implementation of CSR?*

Therefore, the search for answers to these questions should be considered as possible areas of research in the field of corporate social responsibility. An important condition for success is the interdisciplinary approach to the study of problems of the socially responsible behavior of companies. It is obvious that in one article it is impossible to analyze all the approaches to the understanding of the content and the boundaries of social responsibility of business, to consider all aspects of this multifaceted phenomenon and answer all questions. However, the formation of the conceptual foundations of corporate social responsibility, above all, makes it necessary to determine the content of the basic concept of 'corporate social responsibility" as a part of the sustainable development.

As already noted, the analysis of approaches to the understanding of the content and boundaries of corporate social responsibility, currently presented in the foreign and domestic literature, implemented in practice, companies testify to their multiplicity. This is reflected in the large number of concepts used by entrepreneurs, sociologists, economists, politicians, journalists to describe the social role of business, 'business ethics', 'philanthropy', 'charity', 'corporate social responsibility', 'corporate social activities', 'social policy of the company', 'social development' and as an ambiguous understanding of the content of the basic concept of 'corporate social responsibility' (Corporate social responsibility, CSR): administrative aspect). The most widely used definition of corporate social responsibility that reflect an understanding of this phenomenon by business communities and experts:

- Social responsibility - is to achieve commercial success paths that based on ethics and respect for people, communities, the environment (the organization of 'Business for Social Responsibility', USA);
- Corporate Social Responsibility - It means the conduct of business, which corresponds to the ethical, legal standards and public expectations or exceeds them (European Commission);
- Social responsibility - a set of policies and actions related with key stakeholders, values and fulfill the requirements of the law, as well as taking into account the interests of people, communities and the environment (World Bank documents on the issues of corporate social responsibility) (World Bank);

- Social development of the business - a broad term that reflects the positive contribution of business in social development (Russian Association of Industrialists and Entrepreneurs).

A comparison of points of view on the content, border and in the forms of corporate social responsibility and analysis of the current practice companies would base at least on five approaches to understand the social responsibility of the content and boundaries of business. These are liberal, traditional, socially oriented, strategic and integrated.

1.1.1 Approaches

Supporters of liberal approach to the understanding of the content and corporate social responsibility boundaries believe that social activities are the moral rights of the owner, the company's management are subject to rules, codes and business associations (Kakabadse, Rozuel, Lee-Davies, 2005). Under this approach, the responsibility is manifested in the obligation to comply with the rules, to operate under certain constraints imposed by the legislation and the market. One of the best known and most consistent supporters of this approach, as we know, was the American economist Milton Friedman. Delivered them to the phrase 'business of business is business' reflects the understanding of the social responsibility of business is to organize the production of the most efficient way, making a profit and its maximization.

Unlike Western countries, in modern Russia in this approach there are a lot of supporters, especially among the business representatives. Thus, the authors of the article 'Charity under duress,' published in the 'Expert' magazine, wrote: 'The main purpose of business - profit under the current legislation. Accordingly, the primary responsibility of the businessman - to obey the law. This entrepreneur formal commitments to the state and society are exhausted. All other liabilities are purely voluntary and are determined mainly by the ethical norms and political culture, as well as the requirements of reputation management' (Gafin, Ismagilov, 2004).

At this point of view, there are few weaknesses. Firstly, it is obvious that the implementation of the objective function of a commercial firm, understood as maximizing profits, strengthen and expand the market position and competitiveness, may involve extremely painful in social terms solutions: restructuring, reducing staff, freezing wages, unfair competition, concealment of income from taxation, shady schemes of payment of wages, environmental damage, and so on. Secondly, the proponents of this view tend to analyze spending on social programs and projects as an unwelcome diversion of funds, do not see the connection between socially responsible behavior and the main activities of the company. They are convinced that socially responsible behavior cannot be beneficial to the business profitable in the direct economic sense of the word, i.e., to have economical sky effect in terms of increased competitiveness, profit capitalization; that businesses constantly have to find a compromise between the economic benefits and social responsibility.

Along with the position of the above, there exists a point of view, according to which the social responsibility can be reduced to a charity in the traditional sense of phenomena. Charity is seen as an ethically necessary element of business life. This approach to understanding the social responsibility can be described as traditional (Kakabadse, Rozuel, Lee-Davies, 2005). In this case, the debate boils down to the clarification of questions about whether the charity can be attributed to the responsibility of the business or should be purely voluntary; public spheres and forms to carry out charitable activities? Supporters of the traditional approach of considering the social costs (donations) as damages. It should be noted that, despite a very strong tradition of philanthropy in the United States and Western Europe, its huge size and diversity of forms, social responsibility of business in these countries is not reduced to the charity. Charity is seen as one of many possible tools of corporate social responsibility.

Supporters of socially-oriented approach believe that corporate social responsibility is reflected in the fact that the company carries out its activities in a certain frame of reference, within the rules, obligations, and restrictions, including those established by the state, beyond achieving the greatest possible economic efficiency (Kakabadse, Rozuel, Lee-Davies, 2005). In this case, social responsibility is manifested in the production of quality goods and services, payment of taxes, creating jobs, decent pay for the company's staff, support their own social infrastructures. In practice, this approach usually means a limitation of social responsibility within the internal space of social policy.

Strategic approach involves the expansion of the boundaries of social responsibility beyond short-term solutions, internal to the company's industrial and social problems (Kakabadse, Rozuel, Lee-Davies, 2005). It means activities aimed at addressing the social, environmental and economic problems, both internal to the company, and external, affecting the core activities of the company, in accordance with its strategic interests, in order to improve the sustainability of the business in the long term. A distinctive feature of this understanding of social responsibility is an approach to corporate social responsibility, the corporate social policy as an element of the company's strategy, factors and conditions for its successful implementation. It is obvious that a strategic approach ensures higher efficiency of the socially responsible behavior of companies.

Supporters of integrated approach considering the company's social responsibility as a perceived need; response to system calls; way to share with the state and society to minimize the economic, social and environmental risks; condition for improving competitiveness and business efficiency. Finally, as a condition for building a civil society and the welfare state (Kakabadse, Rozuel, Lee-Davies, 2005). This position suggests that the social policy of the company is becoming an essential structural element of the company's development strategy and its long-term policy has a direct impact on the core activities of the company. The integrated approach implies that the interests of all key stakeholder groups (stakeholders); responsibility in the economic, environmental and social spheres, in the field of business ethics are met. Key features of the integrated approach are reflected in the fact that:

- company takes the anticipatory initiative to identify interested parties (stakeholders) and the study of their needs (requirements) of interest;
- The company defines priorities in their activities, provides a socio-economic impact, based on the detected governmental long-term social trends and demands of key stakeholders;
- company is considering the implementation of the principles of socially responsible behavior as an activity that meets its long-term interests, linked the strategic goals of the company's development and social objectives;
- implemented social projects sustainable and economically feasible;
- company spending on social programs and projects are considered as social investments that have long-term effects;
- company introduces an innovative approach to social issues (venture philanthropy - venture philanthropy), which, inter alia, involves more than simply funding individual social projects and to obtain short-term socio-economic effects, and strengthening financial sustainability and organizational development of the recipient's resources, the formation of social infrastructure, creating self-developing mechanisms for solving social problems;
- company aims to integrate CSR in the corporate governance system. It is important to emphasize that the strategic and integrated approach to corporate social

responsibility requires a different attitude to the costs for the implementation of various social programs. Resource support for a targeted long-term policy of the company to address the social problems of its staff, the local community and society as a whole, in this case, is seen as a corporate social investment (Social Investing).

An integrated approach to understanding the social responsibility of the content and scope of business is perceived today not all and not the leading direction of the socially responsible behavior of companies. However, in our view, it allows companies expect to receive not only social but also economic benefits of socially responsible behavior. This is indicated by the authors of the article 'Corporate Social Responsibility: to succeed, doing good deeds' Falk and Hiblich (2007b): 'Short-term actions such as cash donation for certain social goals, or sponsorship of popular events, are not an effective means achieve success. The effective corporate social policy should be long-term, and social investments planned, monitored and evaluated regularly' (Falk, Heblich, 2007b).

2 Methods

In the scientific literature, known to be one of the first to attempt to formulate the notion of 'corporate social responsibility' is by an American Researcher G. Bowen. In 'Social responsibility of a businessman' the author made a number of provisions that define the scope and direction of discussions on corporate social responsibility. According to him, 'it refers to the obligations of business to follow the policy, such decisions which are desirable in terms of the goals and values of the whole society' (Bowen, 1953). In this sense of social responsibility of business, the main subject of socially responsible behavior serves as an entrepreneur or businessman. Social responsibility is personalized, and therefore primarily determined by personal qualities of the entrepreneur and the values he holds.

In the middle of sixties of the XX century, the concept of social responsibility of business has been extended to include it as a subject of the socially responsible behavior of the company (corporation) as a legal entity. It has set a number of new researchers issues, including the issues related to the possibility of combining the socially responsible behavior of the company with the realization of its objective function, understood as the maximization of profits, to increase the interest of managers and shareholders in the implementation of social responsibility. Finding answers to these questions forced to rethink the role of business in society, a different approach to the definition of its social responsibility. For that reason, a new approach to the understanding of the content and boundaries of social responsibility of business has been formulated in the works of T. Levitt and M. Friedman (Levitt, 1958). Most clearly Friedman's position was set out in the article 'Social responsibility of business is to increase its profits. 'In his opinion, there is only one and only one social responsibility of the business world - to use its resources and engage in activities designed to increase profits, subject to the rules of the game, that is, to engage in open and free competition without deception or fraud' (Friedman, 1970).

In the eighties and nineties of XX century, a new wave of interest in the issue of the socially responsible behavior of companies came out. In this period the so-called three-pronged approach to the understanding of the content of corporate social responsibility. Proponents of this approach are of the view that social responsibility involves the responsible behavior of the company in three spheres - economic, environmental and social. At the same time, it draws attention and a shift of emphasis in research toward the study: the company's relationships with stakeholders; mechanisms for the implementation of corporate social responsibility; the impact of the socially responsible behavior of the company on its core activities, the competitiveness, and growth of capitalization. This, in turn, suggests that the studies become the more definite pragmatic character. Thus, a growing interest in issues of

social responsibility of business in the US and Europe, researchers associated with exacerbations of environmental and social problems such as social conflicts caused by the activities of transnational corporations. It is in the nature of a modern market economy (its national models), on the one hand it is assumed to be a high degree of economic independence of business entities, and the high degree of interdependence on the other, not only in within the national economies, but also outside them. It is obvious that freedom, in all its aspects, including economic, entails responsibility. As rightly noted 'freedom is a balance between internal and external constraints, and the release process, the transition from internal to external constraints' (Gafin, 2004).

3 Problem solving

However, it is important to mention that companies have realized the need for a system of social policy, thus society gradually develops a positive attitude to socially responsible companies. The professional and scientific communities are common approaches to the understanding of the content and the boundaries of social responsibility of business, the nature of this phenomenon. It is necessary to develop common standards and to create a model of the socially responsible behavior of the company, of course, according to national circumstances, which, in turn, enables the assessment of compliance of the company with these standards, regulate the socially responsible behavior of companies.

The notion of responsibility is multifaceted and cannot be reduced to a one-time implementation of an obligation, the decision of a single, albeit very significant problem. Be responsible - means being able to foresee the consequences of their own decisions made, positive and negative results of the company, affecting both the direct participants in the company, and on third parties (external effects); be prepared to reduce the negative effects and risks; implement preventive measures to reduce them; to bear the costs for the costs caused by the company's activities; operate within certain rules and restrictions, including those taken on voluntarily; while making certain business decisions to be guided not only by short-term corporate interests but also the interests of all who are directly or indirectly linked to the company. Therefore, this sense of responsibility is the basis of stability and systemic corporate social responsibility and social policy.

As a subject, CSR should be considered by business organizations (in business structure), a company existing in various legal forms. The concept of corporate refers to the fact that, first of all, we are talking about the social responsibility of large companies, existing in the form of joint-stock companies (corporations). This is due not only to the fact that corporations are the main form of organization of big business in the modern economy and their role and influence are growing but also the fact that corporate governance should be based on account of the needs of all stakeholders, and corporate governance becomes one of the factors of growth of efficiency and competitiveness of the company.

4 Discussion

The increasing influence of the corporate sector in the national economy makes it the leading subject of the socio-economic development. To ensure sustainable, balanced development is necessary to achieve a balance of interests between all economic actors. The financial crisis has revealed examples of socially irresponsible behavior of the banks, the consequences of which is experienced by not only the customers of these banks but also the economy as a whole. The object of corporate social responsibility is the internal social environment of the company as well as external to its socio-economic environment (collection of socio-economic environment in which the entity operates). The internal social environment is formed by company owners (shareholders), managers and employees. External social

environment (social environment) formed by other interested parties in the company. Currently, as is well known, a widespread theory (concept) of stakeholders stakeholder theory (Freeman, 1984). According to this theory, those who can influence the implementation of the strategic objectives of the company, and those, in turn, may affect the implementation of the strategy of the company should be considered as interested parties or stakeholders. In accordance with this approach, society can be divided into different groups stakeholders. Proponents of this approach rightly believe that the identification of stakeholders, analysis of the impact of our activities on the interest groups - an essential condition for the success of the company.

Conclusion

In conclusion, it could be noted that, despite a large number of studies in this area carried out by representatives of various scientific disciplines and directions, the debate about the content and limits of corporate social responsibility is far from over. At the present time, we can only speak about the problem statement and nomination hypothesis according to which socially responsible behavior of companies is objectively conditioned process, a response to the challenges and changes in the socio-economic sphere; socially responsible behavior can have a positive impact on the company's core business and contribute to sustainable development as a separate company and society as a whole. Below the list demonstrates the fundamental requirements or stakeholder expectation in order to be part of the society and develop competitiveness, in overall to have an inclusive economy.

- Company: Staff Conditions of work, corresponding to the modern requirements of labor protection, decent wages, respect for labor rights enshrined in law, possibility of training, career growth, social protection, the ability to solve social problems;
- Shareholders: Creating a favorable business internal and external environment, improving the sustainability of the business in the long term, reputation of socially responsible company, the trust of the staff, partners, customers, government authorities, favorable corporate climate, improving quality of corporate governance, positive attitude to the business community, the growth of capitalization;
- Partners: the growth of the company’s prestige and credibility, establishing long term partnerships; Local Community: increased investment in the development of the region, the solution of social problems, social infrastructure development, solving the problem of migration, align the level of socio-economic development of the region, the solution of environmental problems;
- State: Distribution of the burden of social responsibilities between government, business and citizens, reduction of public social expenditures (tax burden), formation of a new model of social policy, social stability, compliance with the standards of the welfare state, compliance with laws, loyal business (joint solution of social and economic problems, minimization of the negative effects of the market mechanism functioning);
- Customer: The production of high quality goods and services, respect for the rights of consumers, fair pricing;
- Society: the harmonization of the interests of society and business, implementation of the concept of sustainable economic development.

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THE USE OF CLUSTER ANALYSIS FOR MARKET SEGMENTATION OF CANDIDATES FOR HIGHER EDUCATION AS A TOOL FOR EFFECTIVE COMMUNICATION TARGETING UNIVERSITIES IN THE CZECH REPUBLIC

Kateřina Kantorová, Hana Jonášová, Jan Panuš

Abstract: *Czech education system faced some huge changes during last decades (1990 - 2015). The number of students was high in the beginning of this decade therefore new universities or educational institutions were established. Later on (last 5 years) we are facing the reverse trend of decreasing number of students. Some universities have serious financial problems and are close to finishing with their activities. Forecast for next 5 - 10 years could be better due to increasing number of students again. Universities must change the way how to think about students and how to attract them to study their study programmes. One of the possible ways is to create study programme to be attractive for students which mean using customer-oriented approach to become dominant university at region. We identified the aspect of students' decision making process – choosing the specific needs why to study at specific university and we made the analysis of these needs.*

Keywords: *Cluster Analysis, Communication, Marketing, Universities, Higher education.*

JEL Classification*: I23, C38.*

Introduction

Public services provided by many other universities [24] in the Czech Republic are increasingly exposed to competition pressure and are aimed at the interest of users. This is done based on selected marketing tools. The higher the interest of the users and the reputation of the organization, the easier it is to get the funds that are needed to ensure a growing quality of service [2], [23].

If a university successfully analyses the most important aspects which impact the selection of prospective students, it can more precisely and more effectively direct its communication activities and more accurately formulate its mission to more clearly reach its target group.

It is in the interest of each university not only to focus on addressing and recruiting a sufficient number of students, but it should make an effort to obtain students with a genuine interest in the field, which is a prerequisite for a successful, happy and first-rate student.

For such students, there is a greater potential to become loyal in terms of: attitudinal loyalty, which expresses the emotional relationship with the organisation and is manifested in praise for the institution and the intensity of recommending it, and behavioural loyalty, expressing a repeat customer behaviour (such as continuation on a master's degree at the same university, an attitude towards employing graduates of one's 'alma mater'). For many students this is very important due to expectation of universities as quite stable organization [22]. Loyal students have a higher 'customer value' to their chosen university. Some students are interested in combination of research and teaching together [10, 25-26] which is important aspect of aiming the benefit of studying. This is true even in the public and non-profit sector, although here the possibility to calculate the customer value is limited compared to the profit

sector, where the financial benefits for each customer or market are more easily quantifiable [11].

There are many literatures dealing with the use of cluster analysis to assess the different properties of selected data collections from the field of higher education. One perspective [19] examines a group of foreign students visiting the Metropolitan University in Melbourne. It is interested in how students engage in different learning relationships. The result is three groups of students who are positively involved, unconnected and stressed, and then those who are the worst. This research will help universities engage in student groups to university provides the necessary support. Our interest is to find out student preferences when selecting different options. An example of cluster analysis is the efficiency of flipped classroom selection [15]. There is also an emphasis on different forms of teaching so that students are better attracted. In the case of marketing aimed at universities, it is also necessary to look at various forms of teaching and involvement of students. [12] deals with the assessment of students at universities in relation to importance related to the different aspects of teaching. The paper also introduces a view of heterogeneity resulting from student preferences, which is further integrated into a comprehensive learning assessment. Such assessment is also important for our outcomes, as universities can further decide how these principles university will promote.

There is a long history of how to evaluate the impacts of teaching on students and what is the appropriate way to measure these impacts [13]. Researchers agree that the main shortcomings of current procedures are that it is not entirely clear whether individual items in the questionnaires accurately represent the basic concept for which they were created [14]. Teaching is a complex activity with many components that are in harmony with various components such as organization of study, interaction, feedback and surroundings provided to students [1, 5]. In any case, the approach to evaluating outcomes as perceived by students is also included in those lessons that are not related to teaching, such as support for non-teaching activities. Diagnostic feedback should reflect multidimensionality and this should also be included in research into how students perceive their surroundings.

There are many ways to evaluate learning related activities. [3] describes 12 ways of evaluation. Most of the evaluation is represented by the Likert-format scale, which we also included in our article. The responses are then averaged and average scores generated [7]. This score is then used as an efficiency index and is further used as an index of the effectiveness of the activity.

There are many findings on students´ choices of their university to study [4], [6], [9], [16], [21]. The aim of this article is to determine what segments of the higher education candidate market can be found what characterises them, or what criteria they determine when choosing a university. The analysis should serve as a basis for deciding whether to target the entire market with unified communications, or whether to divide the communication and target individual segments separately. At the same time, research should direct these communication activities precisely, in order to focus most accurately on factors that a potentially successful and high-quality student perceives as important. This could help universities to reach a sufficient number of candidates in the efficient use of funds through their offers.

1 Problem formulation

The aim of the paper is to show the model situation as it is possible to find out which segments can be found on the market for applicants for higher education, what is characterizing them, what criteria they decide when choosing their university. Research should show how to help direct communication activities in order to pinpoint as accurately as possible the factors that a potentially successful and quality student perceives as important.

This could help universities intervene with a sufficient number of applicants, with effective spending of funds. Similarly, other public sector organizations can use it.

When defining stakeholders in the case of universities, it is not only the students involved, but could also be an Accreditation Commission (with an interest in maintaining the required quality), or friends and parents of applicants etc. [20], [27]. An organisation communicates with interested parties at various levels, utilising various tools and communication technology. It should be consider some key factors that ensure stability at higher education [18] similar to approach as defining stability in different areas such as management, marketing etc.

To ensure that these tools are used most effectively, an organisation approaches the division of a market (customers) into clearly defined parts (market segments) and the subsequent selection of the segments on which it will focus. This tool is called targeted marketing. Its purpose is to discover and identify the structure of the market and its segments. This is a relatively differently presented group of customers, in the acquisition of which a uniform marketing approach can be applied, as well as for meeting their needs [17].

For communication with the selected segment, a specific content, form, atmosphere and type of media are used. For a different segment and its effective targeting, some of these aspects are adjusted so that an adequate message is presented in terms of the attitudes, values, requirements and communication techniques used by the group of customers.

One of the tasks of the management of universities / faculties as part of the marketing communication planning is not only to acquire a sufficient number of students, but also that these students have a genuine interest in the subject studied. The starting point for planning effective communication is to know the current requirements of future students, not only where the motivation of school choice is concerned, but also the choice of communication channels. The school which has adopted the principles of marketing management has also thus decided to meet the needs and wishes of its customers using a particular set of marketing tools. This toolkit is referred to as a marketing mix.

In the case of educational institutions, an extended marketing mix of services is used. In it, advertising plays a key role.

The extended marketing mix used by schools includes five tools, (5P):

- Product – the educational offer of a school is the school's own product, and is composed of different study programs which define the method of obtaining an academic degree. A particularity of each study program is a certain modularity of the subjects. Practical training can also be included in the product, as well as the possibility of international internships and the involvement of professionals in teaching.
- Price – in education, price to a large extant loses its function. Only the students of private schools pay tuition. Students of course do not consider only tuition in the cost of education. They also take into account transport costs for education, accommodation, meals and any necessary supplies.
- Placement – the distribution of an educational program may include such things as the location of the school, its accessibility and amenities, including accommodation options, teaching schedule and its own method of distributing the educational program. Proof of good quality distribution of an educational program is optimal conditions provided for studying the educational program at a cost acceptable to the school and its students.
- People – the interaction of academic staff and other students.

- Promotion – Advertising

It can be summarised that the marketing mix of a school focuses primarily on:

- Adapting the offer of the school's educational program according to the needs of students, in response to practical requirements;
- Providing a study program at a price equivalent to the amount of its perceived value;
- Suitable academic burden on students (such as the difficulty of the admission procedure);
- Delivering educational services in schools at the proper place, appropriate timing and quality of the educational environment;
- Communication ability and the university staff showing an interest in the students' needs;
- Targeted external communication with stakeholders and internal communication with employees.

1.1 Problem solving

The aim of this paper is to determine what segments of the higher education candidate market can be found, what characterises them, or what criteria they determine when choosing a university. Research should be directed in order to focus most precisely on factors that potentially successful and high-quality student perceives as important. This could help universities to reach a sufficient number of candidates in the efficient use of funds through their offers.

Based on the criteria of the extended marketing mix used by the schools, questionnaires were compiled, the aim of which was to determine which main factors affect the candidate when choosing a university, and also to specify in which segments of the market candidates for higher education may be found. What characterises them, or what criteria they use when deciding on their choice of university. The analysis should serve as a basis for deciding whether to target the entire market with unified communications, or whether to divide the communication and target individual segments separately.

We used basic statistical processing of data, and selected tests including hypotheses. For the actual segmentation itself, cluster analysis methods were used. Similarly, this analysis was also used for such things as classifying foreign applicants at Czech universities or establishing agreement between the content of the ICT degree courses and the practical demands in the country [8], [28].

On the basis of two separate surveys, we created a classification of two specific groups of respondents. A secondary goal was to identify and describe the individual segments and their main characteristics in terms of their motivation in choosing a university. We then compared the outcomes among themselves derived from both surveys.

1.2 Methodology of Data Collection

The questionnaire survey was carry out in cooperation with the administration of the secondary schools after prior agreement and consent. Given the objectives of the research, a 'non-exhaustive selection' was made, which assumes a survey only for a certain sample of units. Even in this case, a selection of suitable opportunities made based on easy accessibility.

For the implementation of the research, two independently conducted questionnaires were selected. The first (Type 1) was aimed at first and second year university students, the second investigation (Type 2) was conducted in final year classes at selected secondary schools in the Czech Republic. The surveys were carried out in collaboration with faculty undergraduate students as researchers.

The main monitored types of properties related to the motivation of school choice such as recommendation of friends, prestige of the university; opportunity to study abroad, experience gained in collaboration with real world specialists etc.

In the Type 2 questionnaire (secondary schools) responses to the preferred type of admission procedure were also analysed.

The questionnaire for Type 1 was divided into three parts: dividing respondents into the target group and other groups; factors that most influenced the choice of university and which most motivated them to study at university. The last one focused on additional information on respondents. The survey was conducted during the months of January and February of 2014. The questionnaire was distributed among the students via the Internet. Information about it was circulated via the students' social networks - researchers. It was also one of the reasons why the majority of respondents are students of the University of Pardubice. 330 questionnaires were filled in, but after checking the completeness and the selection of the target group 259 were selected for further processing (of which 169 were University of Pardubice students).

The Type 2 questionnaire consisted of two parts - the criteria for the selection of university and where the information was sought, and whether they know the University of Pardubice. Only part of the data was included in this research (useful for segmenting and subsequently comparing with the data obtained in the Type 1 survey). The questionnaire survey was carried out in cooperation with the administration of the secondary schools after prior agreement and consent. Given the objectives of the research, a 'non-exhaustive selection" was made, which assumes a survey only for a certain sample of units. Even in this case, a selection of suitable opportunities was made based on easy accessibility.

The processed part consists of three segments: identifying respondents, finding interest in studying, and decisive factors in the choice of school.

The survey was conducted from 1 February 2014 to 28 February 2014, at the time when all students interested in studying at university were beginning to gather information. 505 completed questionnaires were received, but because of incomplete forms or lack of interest in further studies 449 were used for further processing.

2 Cluster Analysis

Given that there are a large number of objects with a relatively small number of monitored characteristics - properties (in accordance with the set objectives), a method of multivariate analysis was used for the processing - cluster analysis. Cluster analysis is a method that deals with investigating similarities multidimensional objects that are described by more than one property, and classified into classes or clusters. This is especially useful where objects have a natural tendency to group together. This classification is called numerical taxonomy. Three main objectives can be formulated through cluster analysis: empirical object classification, simplification of data and identification of relationship after finding clusters of objects, and thus also in the structures among objects it is easier to detect relationships between objects.

Performing the analysis of large disparate group will reveal a few homogeneous clusters, which will help us to get an idea on the various segments of the candidates (and their motivation).

The following section will discuss the preparation of the data, which consists of obtaining the actual data from two independent surveys and determining the structure of the data. The data obtained had different characteristics. Therefore it was necessary, mainly for possible comparisons, to choose only those characteristics that correspond to our research – the motivation of students in choosing a university.

The questionnaires were designed so that respondents would select from the choices offered, that were designed based on the Likert scale position measurement technique. All the answers are converted into numerical values. For questions such as 'What influenced me', respondents could choose from three options: 'strong influence', 'medium influence' and 'had no influence'. As part of the final analysis, the only responses accepted were 'strong and medium influence', which were united into one with the following method: The response 'strong influence' had a weight of 1.5; the response 'medium influence' had a weight of 1. The response that a given criterion had no influence on the respondent's decision is not relevant for the objectives of the project. As well the unique ID codes of the respondents were modified so that the following will be able to be identified during analysis of the outputs:

- for Type 1: serial number, gender, subjects studied at secondary school and university;
- for Type 2: serial number, gender, subjects studied at secondary school and place of residence (district).

Respondents' gender and type of secondary school studies were also determined (see Tab. 1 and Tab 2). Nearly 2/3 of women responded to the surveys. In the Type 2, this can be explained by the type of secondary schools that participated in the survey.

The criteria for research were defined, which indicated that they had to be students of first and second years of university and fourth year of secondary school with a school-leaving exam who wanted to study at universities. After determining these criteria, a sample of respondents for testing using statistical tables was determined. Because of the inability to get the base file size from publicly available data, the size of the base file is not taken into account. Therefore, the formula for an unknown composition was used:

$$n = z^2 \cdot \frac{d \cdot (1 - d)}{(d - r)^2} \tag{1}$$

where:

z - requested confidence level
d - standard deviation
r - expected deviation

that is, for a d = 50%, a 95% degree of certainty and a 4% discrepancy expected by us, it was calculated that in order for research to be representative according to the criteria chosen by us, 600 or more respondents should be involved in the research.

It corresponded to 505 high school students who are planning to apply for a university, and 330 respondents said they were studying the 1st or 2nd year of the Bachelor's degree program. This means that 835 questionnaires were processed. Furthermore, the completeness of the questionnaires was checked. Fully completed and further processed questionnaires were 708, which is a sufficiently representative sample according to the above test.

Tab. 1: Gender of Respondents

	Male		Female	
	Absolute value	**Relative value**	**Absolute value**	**Relative value**
Type 1	76	29%	183	71%
Type 2	122	27%	327	73%

Source: own

Tab. 2: Studied type of high school

Type of school	**Gymnasium**		**Dual education system**		**Secondary Industrial School**		**Business Academy**		**Others**	
Type 1	111	42.9%	75	29%	12	4.6%	52	20.1%	9	3.5%
Type 2	199	44.3%	24	5.3%	35	7.8%	189	42.1%	2	0.4%

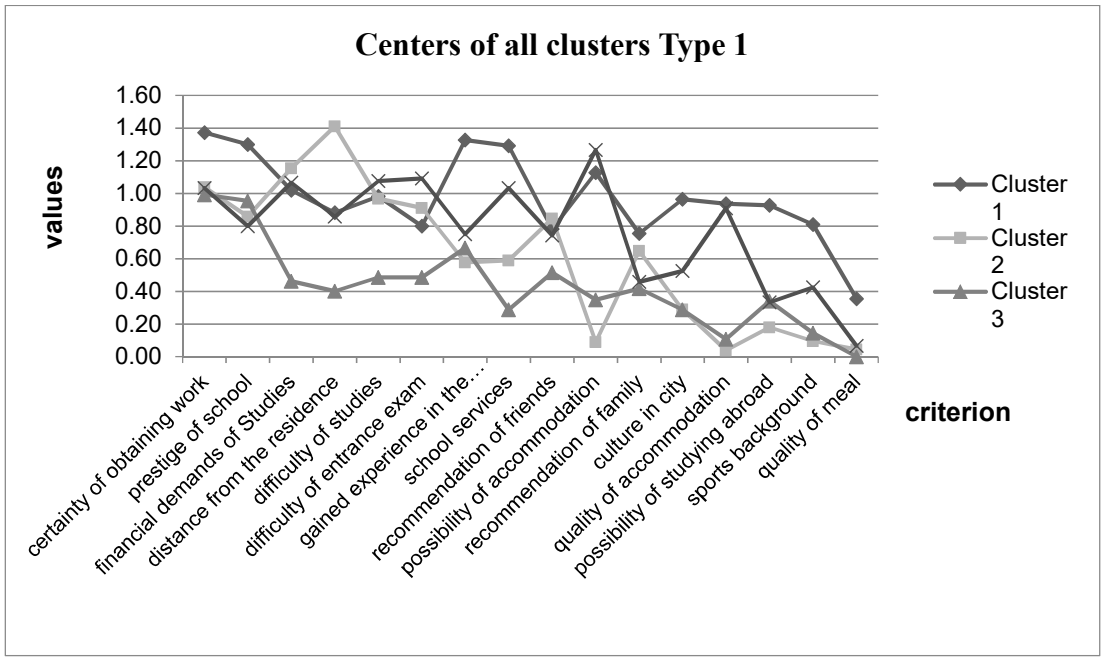
Source: own

A combination of hierarchical and non-hierarchical clustering methods was used for the clustering. The advantage of hierarchical methods is that information on the optimum number of clusters is not needed in the clustering process; this number is determined later. In this clustering two basic problems arise:

- The method of measuring distances between objects (most often a Euclidean metric is used, which is a natural extension of the common concept of distance);
- Selecting the appropriate clustering methods.

In our case, the clustering was done using an average and centroid method. The results were compared and four clusters were determined, which exhibit a relatively even distribution of the objects into clusters. For the next step, non-hierarchical clustering methods were used with a fixed number of clusters, which assign objects to clusters with an optimisation method. Clustering was performed several times with each of the methods, in a superstructural module for MS Excel MONHSA V1 (available at http://jonasova.upce.cz/) with different initial characteristic points (centre of gravity). A Euclidean metric was used for both methods. Clustering based on one of the criteria was selected; a functional sum of squared deviations, and uniformity of distribution. A K-average method was selected in both questionnaires as the most suitable method for clustering. As a check, the same calculation was also made as well with Statistica 12 software. For selected characteristics, the results are shown in the following tables and detailed analyses (results for Type 1 are shown in Tab. 3 and 4 and Fig. 1; for Type 2 see tab. 5). In Tab. 4 and 6 individual clusters of criteria are highlighted where respondents mostly replied that the criterion had influence on the decision. The criteria are ranked from the greatest to the least influence.

Fig. 1: Chart of cluster centers to compare - type 1



Source: own

Tab. 3: The result of clustering for Type 1

The number of variables: 16 The number of cases: 259 K-Means Clustering of cases	The number of clusters 4 The number of iterations 4
Cluster 1	55
Cluster 2	78
Cluster 3	66
Cluster 4	60
Total for all respondents	259

Source: own

Tab. 4: Points of clusters for selected variables Type 1

Criteria for selecting	Total				Average			
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 1	Cluster 2	Cluster 3	Cluster 4
certainty of obtaining work	75.5	81	65.5	62	1.37	1.04	0.99	1.03
prestige of school	71.5	67	63	48	1.30	0.86	0.95	0.80
financial demands of Studies	56	90	30.5	64	1.02	1.15	0.46	1.07
distance from the residence	48.5	110	26.5	51.5	0.88	1.41	0.40	0.86
difficulty of studies	54	75.5	32	64.5	0.98	0.97	0.48	1.08
difficulty of entrance exam	44	71	32	65.5	0.80	0.91	0.48	1.09
gained experience in the profession	73	45	44	45	1.33	0.58	0.67	0.75
school services	71	46	19	62	1.29	0.59	0.29	1.03
recommendation of friends	43	66	34	44.5	0.78	0.85	0.52	0.74
possibility of accommodation	62	7	23	76	1.13	0.09	0.35	1.27
recommendation of family	41.5	50.5	27.5	27.5	0.75	0.65	0.42	0.46
culture in city	53	22.5	19	31.5	0.96	0.29	0.29	0.53
quality of accommodation	51.5	3	7	54.5	0.94	0.04	0.11	0.91
possibility of studying abroad	51	14	22.5	20	0.93	0.18	0.34	0.33
sports background	44.5	7.5	9.5	25.5	0.81	0.10	0.14	0.43
quality of meal	19.5	3.5	0	4	0.35	0.04	0.00	0.07

Source: own

Tab. 5: The result of clustering for Type 2

The number of variables: 14 The number of cases: 449 K-Means Clustering of cases	The number of clusters 4 The number of iterations 3
Cluster 1	126
Cluster 2	98
Cluster 3	117
Cluster 4	108
Total for all respondents	449

Source: own

3 Evaluation of Cluster Analysis

This section of the article contains a summary of the results of the data processing in order to monitor the possibility of segmenting students and applicants.

The result of the distribution of the entire sample (the respondents from among current university students) of Type 1 into clusters brought these characteristics of each group of respondents (see Tab. 4).

Cluster 1 – For this cluster, the certainty of using the education is dominant, including the option of gaining experience, which is certainly connected while the prestige of the university has a great influence. Almost as important are the university facilities, accommodation and financial demands of studying. In this cluster, the recommendation of friends and family has almost no significance.

Cluster 2 – Respondents included in this cluster place distance from the place of residence and the financial demands of study in first place. The certainty of using the education is also important for them along with the difficulty of study and the admission procedures. Recommendations of friends and family are more important than university facilities and opportunities to study abroad. The identification codes indicate that almost 70% of respondents studying at the University of Pardubice are found in this cluster.

Cluster 3 – Similar to Cluster 1, the important factor here is the ability to use the education and the prestige of the university, followed by the possibility of gaining experience in the field. The recommendations of friends also play a role, as does the difficulty of studies and admission procedures or distance from the place of residence. The identification codes show that 40% of the respondents here are among those of continuing study; i.e., students from higher grades.

Cluster 4 – This cluster primarily favours accommodation in the selection of a university, as well as the difficulty of studies, entrance examinations and the financial demands of studying. In the next positions are the success rate of work placements, university facilities, quality of accommodation, distance from the place of residence and the prestige of the university or the possibility of gaining experience in the field. Recommendations of friends and family are ranked among the last positions, along with cultural and sports facilities and opportunities to study abroad. Similarly, as in cluster 2, there are here many respondents studying at the University of Pardubice (80%). There is one more interesting point here; in comparison with other clusters, there is a preponderance of third year students.

For clusters 1 and 2, the most important attribute when choosing a university is usability and prestige, while the clusters differ in whether respondents deal with the problem of accommodation or not.

For clusters 2 and 4, the most important items are the difficulty of the studies and admission procedures and financial requirements. Again, they differ in the need to deal with accommodation (cluster 2 is based on distance; cluster 4 is based on options of accommodation).

Conclusions

Using clustering options to analyse the survey among applicants for studies at universities and university students was done on model data. This demonstrated the possibility to understand information based on results from the questionnaire survey. The paper describes the segments that can be found on the market of candidates for higher education in the CR and determines the criteria of critical importance when choosing a university.

The survey, for example, makes it obvious that if a university wants to target students who have a potentially significantly higher chance of success at school and to complete it, it can focus on information providing greater evidence of the possibilities of applying the education. However, there is a rather not insignificant group of candidates who include sport and university events as important selection criteria. Given that such a profiled segment has not

yet appeared in a breakdown of current university students, it could be assumed that this type of candidate may not successfully complete their studies at a university. This conclusion cannot be clearly confirmed; it would be appropriate to posit a hypothesis and explore it in greater detail with further surveys.

In the case of applicants for studying, a specific group was profiled that introduced the position of the most important influence their choice of university, 'attractiveness of the university city'. This is interesting information for the universities which can use this information when preparing promotional materials. Regional universities, such as the University of Pardubice, do not use this. This would probably concern candidates thus oriented towards regional universities.

The cluster analysis conducted by the university students revealed that among 4 main reasons, most students most often stated 'the certainty of using the education', but introduced other interesting information that students sometimes make decisions placing greater weight on the basis of the six other criteria. Among these are accommodation options, distance from the place of residence, financial demands of study, difficulty of admission procedures and the studies. For marketing workers, it is a question of the factors that will be considered when creating the 'essence' of the marketing materials. They will be completed based on whichever group of applicants are most important for the university. The segment which will subsequently be targeted using this knowledge will likely react better to the signal which resonates more strongly internally. This may then be the decisive factor which generates sufficient interest for a university among the applicants.

The market space in which universities move is quite narrow; far more significant differences would be obtained by the use of cluster analysis in the public administration sectors where is more diverse mix of customers.

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SIMULATION AIDED GAMING AS AN EXPERIENTIAL LEARNING TOOL FOR PUBLIC ADMINISTRATION

Pawel Kazibudzki

Abstract: *Business education involves studying applications of mathematics, economics and behavioral sciences for various problems. Thus, the applied nature of business education is a prerequisite. As far a decision making manner in a public sector differed from that in a private sector. Surprisingly, public administration has undergone significant changes recently mainly due to more and more complex decisional problems it must face nowadays. The objective of this research is to examine a possibility for application of simulation aided gaming for public administration training as the experiential learning tool successfully implemented for years in business training.*

Keywords: *Public Administration, Simulation Aided Gaming, Experiential Learning.*

JEL Classification: *D83, D91, H83, M53.*

Introduction

There are no doubts that a key issue in effective and efficient managing of any organization is a decision-making process and 'good' management simply means 'wise' decisions. Other words, such decisions which enable effective elimination of threats, assure faultless identification and making the best of prospective opportunities, and preserve high efficiency of organizational day-to-day activities. Taking a look at contemporary managers one must notice that they do not manage only other people but also themselves. Very often, in order to accomplish a goal, they must depend on their own cognition abilities i.e. experience, know-how, capabilities and timing. All of these characteristics should be developed, not only for better understanding of external and internal environment, better analytical skills or an ability to anticipate things to come, but most of all to make better individual and collective decisions. The applied nature of business education is paramount. Obviously, means of decision making in a private sector differ from those in a public sector. However, the latter has significantly evolved recently together with its decisions being more and more complex and being affected by changing environment previously negligible such as: ecology impact, further research and developments, perspective of sustainable development etc. (Mezera, Krupka, 2013; Mezera, Krupka, 2016; Krupka et al., 2011). Thus, it seems that public administration and business management exist now in the same reality. If that is so, the question appears: is it possible to utilize training tools applied in business education for improvement of public administration?

1 Outline of the issue

One may realize that Japanese managers live and work in accordance with an almost mythic tome, *A Book of Five Rings,* written in 1645 by the great samurai Miyamoto Musashi. It is propagated that at the age of thirty he decided to redirect his life and devote himself to a search for the principles of strategy (Cadotte, Bruce, 1997). He intended his book as a treaty that would apply not only to battle strategy, but also to any situation where plans and tactics are used. To paraphrase Musashi, the mastery of strategy requires that one fulfill the following six directives: be honest; be familiar with every skill and profession of management; know the difference between profitable and unprofitable activities; attend to detail; identify and work on only those activities that will have value in the future; and train

continuously in order to develop an intuitive judgment and understanding of business situations and an ability to perceive things that others cannot see (Cadotte, 1995). Musashi believed that mastery of these elements occurs only through constant training and tireless practice.

Similar reflections concerning the importance of training can be found also in more contemporary publications e.g. Senge (1990). This author in his book *The Fifth Discipline* states that training, not study alone, is what changes a person. He claims that through purposeful training, an individual can learn to act and think in expanded ways and can thus be transformed into a new competitive force. However, one should notice that there are many ways of managerial training (Kazibudzki, 2009) e.g. lectures, presentations, active training methods like 'action learning', workshops, situational and mise-en-scene methods, case studies – appreciated also in other cognitive methodologies like for instance the Case-Based Reasoning method (CBR), see e.g. Haile, Krupka (2016), events simulations, role playing methods, and Simulation Aided Gaming (SAG).

All training methods have their advantages and disadvantages. For example the lecture alike training format is very effective for transfer of knowledge or information to a large number of participants. However, this format does not especially encourage e.g. creativity among participants, risk taking and interpersonal skills, or problem solving and decision making capabilities. In the case study method on the other hand, one reads a scenario (usually real), defines the problem, determines a set of feasible alternatives, evaluates these alternatives in some objective manner, and selects the one that best meets the desired goals as interpreted from the case materials. The setting remains static in that new information is not available after the end of the case. However, the case alike training format is a major step in the transition from the academic world to the real world. For an excellent discussion of the advantages of the case method, see e.g. Bonoma (1989). Since the nineties, case based studies have been also applied for various application oriented methodologies like already mentioned CBR method which successful applications include e.g. business failure prediction (Hui, Jie, 2011), eco-innovation product design (Cheng, Jahau, 2014), or different medical domains (Cindy et al., 2014; Isabelle, Stefania, 2010). Thanks to such methodologies as CBR, there is an opportunity to analyze and solve complex problems as well think in strategic ways in order to integrate knowledge from different disciplines (Kolonder, 1992; Kolonder, 1993). The disadvantage of the case method for managerial training is a lack of possibility to execute decisions elaborated during an exercise and experience their consequences. There is not also possible to respond to competitive activities of other participants.

From that perspective, SAG attracts the attention. It turns out that this methodology goes further than traditional methods of managerial training in drawing closer the world of real-life business decision making to participants. SAG provides substantial authority and responsibility, as well offers a broad perspective on various problems. Through SAG it is necessary to analyze and solve complex problems, think in strategic ways, introduce decisions, experience their consequences and deal with them. All of this involves continuous strategies adjustment, responding to changes of the environment and planning competitive moves or countermoves. Mostly for those reasons SAG confirmed its effectiveness and efficiency in managerial training within: strategic management, marketing, sales management, international business, economics, see e.g. Faria, Dickinson (1994); Wolfe, Crookall (1998). This tool of managerial training was also extensively examined from the perspective of its external validity i.e. an ability to replicate the real situations of business environment which is supposed to be emulated, see e.g. Faria, Wellington (2005a, 2005b, 2004).

Business education involves studying applications of mathematics, economics and behavioral sciences to problems concerning the production and distribution of goods and services. Thus the applied nature of business education is a prerequisite. It is said that 400

B.C. Sophocles noticed that 'One must learn by doing the thing, for though you think you know it – you have no certainty, until you try' (Gentry, 1990: 9). Certainly for these reasons SAG is a successful tool in business training. However, the concept behind the use of SAG for instructional purposes is that one may obtain a surrogate for experience through acting in virtual environment. For that reason, specific simulation games are carefully designed to mimic real world experiences and learning. Obviously, public administration (PA) differs from decision making manner in private sector (PS), which depends mostly on a size of the business, its market's orientation and branch it operates in. However, during the last 25 years, decision making in PA has undergone significant changes and has become more and more complex. It is essential now to evaluate not only particular inputs and outputs, as well specific elements of a system, but also the system's changing environment previously negligible such as: ecology impact, long-term strategies of national and multinational corporations, impacts of further research and developments, perspective of sustainable development etc. (Mezera, Krupka, 2013; Mezera, Krupka, 2016; Krupka et al., 2011). PA is affected nowadays either by price competition from PS. Thus, it seems that PA exists now in the same economic reality what PS. It has started also to take over and apply the same tools recently. The question arises then, is it possible to apply SAG for PA as the experiential learning tool implemented for years in business training?

2 Methods and results

The basic objective of this research is to answer the question stated in a previous section of the paper aiming at the examination of the utility of simulation aided gaming from the perspective of its prospective applications in public administration.

Basically, four principal examination methods can be distinguished i.e. observational, questioning, testing and experimental as well three fundamental kinds of research i.e. the exploration research called phenomenological (of that what is and is cognizable here and now), the explanation research called causal and effect (of the relation of that what is, to that what it was, what preceded and caused that what it is now), and the prognostic research (of that what it will be due to extrapolation of cause and effect sequence). Additionally, there are three principal types of examined properties i.e. observable ones, hard observable, and not observable (Zimny, 2000).

It should be noted that a research question of this paper reflects a problem which concerns properties of SAG as a tool of experiential learning. Another words, this research strives to solve the exploration problem of diagnostic type. Thus, in association with the fact that examined properties are observable, one can apply either observational and/or questioning research methods. For a purpose of this research, it was decided to conduct a survey in a form of the questionnaire.

The survey was being conducted periodically during the last two years on respondents from Polonia University in Czestochowa (PUC). The respondents were international students of PUC – mostly from India and Cameroon, but also from Kenya, Nepal, Mexico, as well from a few European countries e.g. Georgia, Ukraine, Romania and Belarus – all of them with various experience in the public sector administration, which was acquired during their intensive curriculum program. Participants used Virtonomics® (the economic strategy game) and Ecopolicy® (the cybernetic strategy game) as their SAG's experience.

The following questions were asked in the questionnaire containing standard five degrees Likert's scale (Likert, 1932) for answers:

Question 1: *Before some product is introduced to the market, sometimes it is tested on a sample market in order to gain response. Taking the above into consideration, do you agree*

that a participation in strategic simulation aided games is a valuable source of gaining experience in how to operate under conditions provided by real life?

Question 2: *Basing on your experience with high external validity simulation aided games, do you agree that experience obtained during simulation aided gaming can improve your competence for pattern recognition (the perceptional ability to see relations among seemingly unrelated phenomena) in the environment provided by real life conditions?*

Question 3: *Assuming the high external validity of simulation aided gaming, do you agree that it may be used to verify the participant's capability to see the real world problems from their holistic perspective i.e. their interwoven and interconnected character?*

The questionnaire was given to 69 participants. They were not randomly selected so the survey's results cannot be treated as representative. However, although limited, the research possesses its cognitive value. The response structure of the survey is presented in Tab. 1.

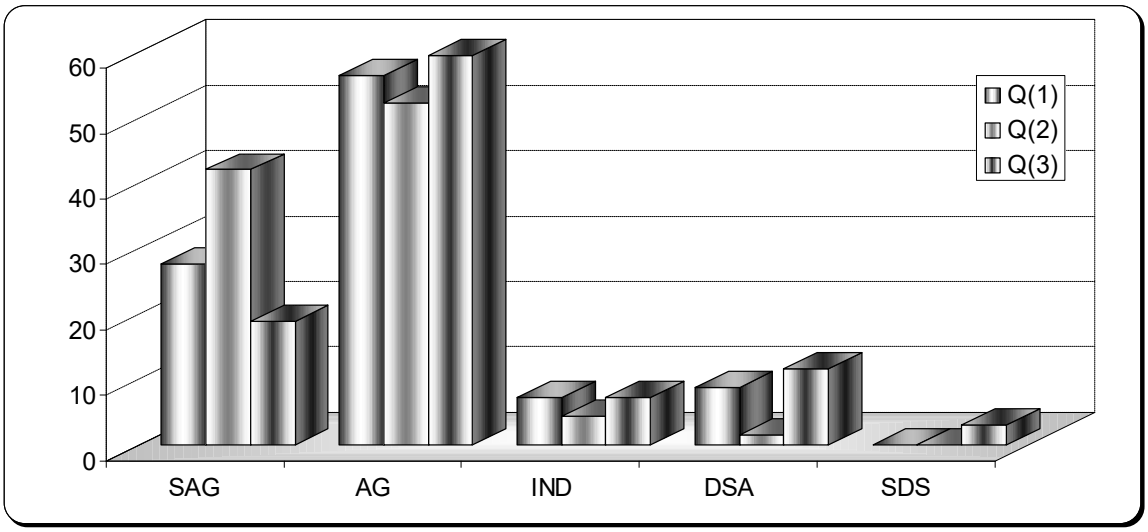
Tab. 1: The response structure for the questionnaire survey

The questions	SAG*[%]	AG*[%]	IND*[%]	DSA*[%]	SDS*[%]
Before some product is introduced to the market, sometimes it is tested on a sample market in order to gain response. Taking the above into consideration, do you agree that a participation in strategic simulation aided games is a valuable source of gaining experience in how to operate under conditions provided by real life?	27.536	56.522	7.246	8.696	0
	∑ = 84.058		7.246	∑ = 8.696	
Basing on your experience with high external validity simulation aided games, do you agree that experience obtained during simulation aided gaming can improve your competence for pattern recognition (the perceptional ability to see relations among seemingly unrelated phenomena) in the environment provided by real life conditions?	42.029	52.174	4.348	1.449	0
	∑ = 94.203		4.348	∑ = 1.449	
Assuming the high external validity of simulation aided gaming, do you agree that it may be used to verify the participant's capability to see the real world problems from their holistic perspective i.e. their interwoven and interconnected character?	18.841	59.420	7.246	11.594	2.899
	∑ = 78.261		7.246	∑ = 14.493	

* SAG – strongly agree, AG – agree, IND – indifferent, DSA – disagree, SDS – strongly disagree.

Source: Author's research data

Fig. 1: The response structure for the research questions



Source: Author's research data

3 Discussion

Long-term decision making in PA becomes more and more complex nowadays. More and more projects within a public sector involve more and more scarce resources and their success does not depend any more on individual elements of the system but its interconnected nature which was previously neglected as not so important. This situation however entails insecurity in decisional processes which thanks to penetration of information technology experienced recently significant changes noticeable especially in deterministic areas. But although social and economics sciences began to play a visible role in contemporary decisional processes in PA, it still somehow seems to fall behind in utilization of software conceptual tools.

It seems important to realize that a public sector exists nowadays in the same economic reality what a private sector. Probably that is why PA has already begun to take over and apply the same tools applied for a very long time by private sector e.g. Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and other Business Intelligence (BI) systems. Well, the Information and Communication Technologies (ICT) based Business Training (BT) has a long history within a private sector (NJM Consultants, 2000). It also concerns SAG as a tool of the cognitive development (Patz, 1995).

Pedagogical advantages of ICT-BT include among others: *ACCESS* (English, Yazdani, 1999): learning materials and resources can be accessed at all times and from remote locations, for example through the Internet or CD-ROM based training. There is no tie to a geographical location or a specific time as is inherent in traditional face-to-face courses; *INDIVIDUAL TEMPO* (Mudge, 1999): ICT-BT adds flexibility and facilitates self-paced learning. Participants may choose to review learning materials on several occasions and repeat the learning experience; *VARIETY* (Barker, 1999): multimedia can be used with modern software (video, animations, pictures, diagrams, text, sound) to ensure variety in presentation of learning materials; *INTERACTIVITY* (English, Yazdani, 1999): ICT-BT can be interactive and maximize learner control; *INSTANT RESPONSE* (Marshall, 1999): ICT-BT makes instant response and/or feedback possible. This can take place e.g. through synchronous technology.

It is undeniable that one is not better informed by the mere fact that it gets more information. An excess of data can be a direct cause of one's ignorance. Noticeably, the development of electronic data processing has as far insignificantly contributed to understanding of the complexity. Surprisingly, it has even enhanced the process of splitting

reality into fragments. However, adequate multimedia programs may help handling complexity by getting acquainted with pattern recognition and a parallel processing of the interconnected levels of the reality. It seems that SAG's characteristics become therefore very attractive.

For example in a simulation aided game called Ecopolicy® (Vester, 2015), all sectors of human life e.g. quality of life, environmental stress, education, production, population and politics are interlinked. They are connected in such a way that each single decision in the game affects its remaining elements. Indeed, results of a single decision are literally spread within the entire system, and have their repercussions and consequences in all areas of the game, alike in the real life. In order to intensify the game experience the logic of fuzzy sets is used. It enables qualitative factors to be integrated within the simulation gaming process as well. Elements like for example sympathy and antipathy, approbation and disapprobation, attractiveness or harmony are unquantifiable in their nature and as such they are very hard to be reflected in a virtual environment. It is believed however that these sensations attributed to the right side of human's brain are very crucial in cognitive processes and perhaps even the core of human's cerebral performance. Thus, it is paramount for a simulation aided game to have these sensations reflected in the gaming process. It should be noticed that this directive has its scientific confirmation e.g. Patz (1995). This author confirmed a high correlation (R = 0.747) between results obtained in a simulation aided game and a personality and practical experience of individuals participating in his research. It behooves mentioning that this research pioneered a professional psychological approach to the problem because the Myers Briggs Type Indicator personality questionnaire was applied for the first time then and it is a very credible and popular (annually 2.5 millions of people use it nowadays) instrument for an individual's personality identification. The research took place during classes with MBA students and applied two simulation aided games i.e. Micromatic and Multinational Management Game.

Noticeably, fostering better understanding of complexity without increasing the flow of information is a fact, too. Ecopolicy® for instance as a cybernetic simulation game is designed in the way which let to experience the pitfalls of the usual practice of concentrating on isolated problems. Indeed, focusing and solving only one problem, in the same time being unaware of the systemic repercussions it entails, usually leads to several new problems. However, making complex decisions and dealing with the chances and risks of complex processes and their cybernetics in virtual environment let to gain credible experience and appropriate attitude in order to successfully avoid similar traps in real life.

It is claimed for a long time (Gee, 2007) that human learning is not just a matter of what goes on inside people's heads but is fully embedded in a material, social, and cultural world. It is also claimed that humans do not often think at their best when they try to reason through logic and general abstract principles detached from experience. It seems people think best when they reason on the basis of patterns they have assimilated through their actual experiences. Certainly, these patterns become generalized in time, but these generalizations are still rooted in specific areas of embodied experience. Thus, so called 'active learning' makes possible among other things (Gee, 2007: 24): learning to experience (see, feel, and operate on) the world in new ways, socialization, and gaining resources for future learning and problem solving in a particular semiotic domain (an area where people think, act, and value in certain ways) as well in other domains.

The survey presented in this paper concurs the viewpoint of other research discussed herein. It supports the following statements: (1) a participation in strategic simulation aided games is a valuable source of gaining experience in how to operate under conditions provided by real life; (2) experience obtained during SAG can improve humans' competence for pattern recognition i.e. their perceptional ability to see relations among seemingly unrelated

phenomena; (3) SAG may be used to verify humans' capability to see the real world problems from their holistic perspective.

Conclusion

A basic objective of this research was to answer the following question: is it possible to apply simulation aided gaming, as the experiential learning tool implemented for years in business training, for the public administration? The examination of the simulation aided gaming utility from a perspective of its prospective applications in public administration was carried out with application of the survey questionnaire. The research question stated in the paper reflected a problem which concerned properties of simulation aided games as tools of experiential or active learning. The survey's results cannot be treated as representative but in conjunction with other research described in the paper they have their cognitive value.

Concluding, SAG is a valuable source of gaining experience in how to operate under conditions provided by real life, it can improve humans' competence for pattern recognition, and it may be used to verify humans' capability to see the real world problems from their holistic perspective. All these areas are very important elements of public administration.

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SOCIAL EXCLUSION IN THE CZECH REGIONS: MANIFESTATIONS AND APPROACHES TO SOLUTIONS

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Abstract: *The aim of this paper is to assess what is the state of the issue of social exclusion and in particular the elements causing threats to this socially undesirable phenomenon in the individual regions of the Czech Republic and what approaches to its elimination are chosen by the regional governments. The validity of the established hypotheses has been verified using the span standardization, correlation analysis, document content analysis and budget expenditure analysis. The analysis performed show that not in all regions the social exclusion situations have improved between 2010 and 2016; with a very strong correlation of indicator levels relevant for assessing the state of the fight against social exclusion and the number of socially excluded localities. Most of the regions - not just five more vulnerable to social exclusion – have been combating this negative phenomenon directly in their strategic documents, only three regions treat this phenomenon not only as an economic, social, but also a security issue. However, it was not confirmed that regions with a higher degree of social exclusion from their regional budgets would allocate above-average funding to this area. Structural analysis of expenditures on prevention and solutions to social exclusion shows the difference in accent on individual segments.*

Keywords: *Social exclusion, socially excluded localities, regions of the Czech Republic, strategic development documents, expenditures of regional budgets.*

JEL Classification*: R58, H55, H72.*

Introduction

One of the serious problems of disrupting the quality of life is social exclusion, the most serious of which is the so-called socially excluded localities. The Europe 2020 strategy, endorsed in 2010, has set the EU's 'Inclusive Growth' goal as one of the EU's objectives, setting an indicator for 'breaking out 20 million EU citizens at risk of social exclusion' (European Commission, 2010).

In order to meet the objectives of the Europe 2020 strategy, the individual member states draw up their national reform programs. They have a different approach to fulfilling the indicator. Some countries address this target in terms of reducing the number of people at risk of poverty or social exclusion, some focusing on reducing the number of low-income households or addressing the number of long-term unemployed. It is about improving the quality of life of the population and increasing the region's resilience in its complex perception (Svoboda, Ibl, Břízková, 2017).

The Czech Republic has focused on its National Reform Program in the strategic document entitled Investing for European Competitiveness and has set the task of keeping the number of people at risk of poverty or social exclusion at the 2008 level (15.3% of the total population) and striving to reduce them by 30 000 (Government of the Czech Republic, 2011). The seriousness of this issue has led to the development of other directly targeted documents, in particular the Strategy for Combating Social Exclusion 2011 - 2015, the Strategy for Combating Social Exclusion 2016 - 2020 and the Social Inclusion Strategy 2014 - 2020. According to the National Reform Program of the Czech Republic 2017 (Government of the Czech Republic, 2017) this target has been achieved in the Czech Republic, the poverty

or social exclusion rate has fallen to 14% by 2015. By 2015, the number of people at risk of poverty or social exclusion was reduced by 122 thousand compared to 2008.

In meeting the objectives of cohesion, however, attention must be paid to the situation not only within the Czech Republic as a whole, but it is important to manage this problem at the level of individual regions within the self-governing regions, as significant disparities could trigger social unrest. The quality of life without manifestations of social exclusion should be and is therefore the focus of public administration bodies (Provazníková, Křupka, Kokešová, 2017). However, questions arise as to: At what level are individual regions within the interregional comparison in the years under review? Does the situation improve in all regions? Does the poor status of indicators relevant to combating social exclusion with a high number of socially excluded sites correspond? Do the regions pay attention to this issue in their strategic development documents? Finally, is the responsibility of spending regional budgets on the severity of problems in individual regions?

1 Statement of a problem

For the strategic approach to solving social exclusion in the Czech Republic, the definition of the Ministry of the Interior of the Czech Republic is relevant, which defines it dynamically as 'a process by which individuals and whole groups of people are deprived of access to resources necessary for engaging in the social, economic and political activities of society as a whole.' (Ministry of Interior, 2014: 4) This concept overcomes Sýkora's static definition of social exclusion, which is nonetheless analogous to the fact: 'Social exclusion is a situation in which individuals, groups of people or social groups have a significantly reduced or restricted access to normal resources, opportunities and positions necessary for engaging in normal life in society.' Sýkora (2010: 17), Čada (2015) defines social exclusion as an extreme form of poverty, poverty mainly concerns economic conditions, the issue of social exclusion reflects wider conditions of life of individuals, households and communities. In his concept of social exclusion, he always has a poverty dimension, but he can be a poor who is not socially excluded. Besides, Sedláčková (2007) also draws attention to the close link between poverty and social exclusion, but according to her, not only poor people are affected by social exclusion, so both phenomena cannot be confused.

Socially excluded group is very diverse. The extensive list of groups processed by Rodgers, Gore, Figueiredo (1995) can be simplified for clarity in five groups: children and youth, women, persons over 65, people with physical or mental disabilities, people of ethnic origin other than the majority society. Aging as an increasing problem of European countries is also highlighted by Fričová, Matěja (2016). In identifying people at risk of social exclusion, the Eurostat conditions, which require at least one of three conditions to qualify as such (Potočková, 2015): i) is at risk of income poverty, ii) lives in a household with very low-work intensity, iii) suffers from severe material deprivation.

Dynamics and multidimensionality as the characteristics of social exclusion, i.e. multiple causes and manifestations in many areas of human life, emphasizes Sirovátka, Mareš (2003).

The individual dimensions of social exclusion are identified differently, but there is consensus among them on the level of generality. A group of American experts defines seven dimensions of social exclusion (Pery-Smith, 2000), including:

- economic dimensions (long-term unemployment, low income),
- social dimensions (family breakdown, marriage breakdown, unwanted pregnancies, homelessness, crime);
- political dimensions (not taking part in elections, inability to participate, denial of political rights),

- community dimensions (devastated environment and dwelling, unavailability of services),
- individual dimensions (physical or mental handicap or illness, lack of education and qualifications, loss of self-esteem and self-confidence);
- spatial dimensions (concentrations excluded in areas with cumulative risk factors such as crime and lack of adequate quality of life - poor environment, poor transport accessibility and infrastructure, poor quality amenities including education and health);
- group dimensions (concentration of exclusion characteristics in certain specific social groups),

Mareš (2006) perceives different perspectives on social exclusion, including the way society responds to it, defining the following: i) redistributive discourse, resulting in poverty and possible remedies of massive redistribution; ii) integrative discourse resulting in unemployment and redress should be ensured by an appropriate employment policy; iii) moral discourse, the cause of which is socially pathological behaviour and the path to the inclusion of resocialization and the removal of physical, social and mental barriers between the excluded and the rest of society; iv) discourse of otherness, given by cultural, linguistic and religious differences, which must be accepted.

This otherness is, besides poverty, as income exclusion another major manifestation of social exclusion, by exclusion in space. This gives social space a spatial dimension (Byrne, 2005). A socially excluded site is the result of spatial exclusion of certain groups of people that combines a certain attribute, such as ethnicity, religion, poverty or social weakness. The analysis of socially excluded localities in the Czech Republic (Čada, 2015) also includes their quantitative definition: a socially excluded area is considered to be a place where more than 20 people live with signs of social exclusion. In addition, Klimešová (2018) draws attention to the serious security dimension of socially excluded localities, according to which '... the specific conditions of their environment and the very limited possibility of escape from such environment brings with them a number of security risks.' (Klimešová, 2018: 23) She further notes that crimes committed here are often latent and remain hidden even from the eyes of the police.

The aim of this paper is to assess the state of the issue of social exclusion and, in particular, elements causing threats to this socially undesirable phenomenon in individual regions of the Czech Republic and what approaches to its elimination are chosen by regional governments. To this end, the following hypotheses will be tested: α) the state of the regions of the Czech Republic is improving in terms of combating social exclusion over time; β) there is a high degree of positive correlation between the poor situation in selected relevant indicators of combating social exclusion and the occurrence of socially excluded localities; γ) regions with a higher risk of social exclusion pay attention to this issue in their strategic development documents where they devote larger funds from their budgets to its prevention and solution.

2 Methods

Interregional comparison of the state of the 14 regions in terms of social exclusion includes six areas, which are characterized by the nine indicators in the structure shown in Tab. 1.

Tab. 1 Overview of indicators relevant to social exclusion assessment

area	indicator	unit	type
employment	percentage of unemployed persons	%	minimization
	rate of long-term unemployment	%	minimization
education	rate of population with insufficient education	%	minimization
security	crime index	%	minimization
health	average life years	year	maximization
sickness insurance	percentage of sickness insured persons	%	maximization
households	the monthly difference of net income and expenditure on household housing	CZK	maximization
	percentage of households with housing problems	%	minimization
	percentage of households with incomes below the living minimum	%	minimization

Source: own processing based on (Klimešová, 2018)

Data source is mainly the public database of the Czech Statistical Office and individual regional statistical yearbooks. To verify the hypothesis α) the state of the regions of the Czech Republic is improving in terms of the fight against social exclusion over time, the standardization method of span standardization will be used because the variables have different contents and may contain outliers. The standardized values are calculated according to formula (1):

$$y_{ij} = \frac{x_{ij} - min_j}{max_j - min_j} \tag{1}$$

where *y = standardized value* *index i = region*
x = indicator's value *index j = indicator*

Standardized values range from interval <0; 1>. The closer the value is to 1, the more the indicator contributes to improving the social exclusion situation for the maximization type indicators. However, minimalization indicators will also be used in the analysis for which the lowest value is desired. In this case, the standardized values need to be converted according to formula (2):

$$y_{ij} = 1 - y_{ij(\min)} \tag{2}$$

where $y_{ij(min)}$ *= standardized value of the minimization type indicator.*

The statuses of individual regions in 2010 (prior to the approval of the National Reform Program) and 2016 (latest available data) are compared by means of the sum of the standardized values of the indicators listed in Tab. 1. The maximum sum of standardized values is 9 (best possible result), minimum 0 (the worst possible result).

The hypothesis α) will be deemed to be confirmed if the resulting aggregate values for the year 2016 are better than 2010, and for all regions of the Czech Republic.

In order to verify the validity of the hypothesis β), there is a high degree of positive correlation between the poor situation in selected relevant indicators of combating social exclusion and the occurrence of socially excluded localities, correlation analysis using the Spearman coefficient of sequence correlation (3).

$$r_{i_x i_y} = 1 - \frac{6\Sigma(i_x - i_y)^2}{n(n^2 - 1)} \tag{3}$$

where: i_x, resp. i_y = the value of the order of the sum of standardized value, resp. by number of socially excluded localities; n= number of regions

The correlation analysis uses the sums of standardized indicator values for 2016 and the last known number of socially excluded sites in 2014 (Čada, 2015). This two-year difference between data can be considered acceptable in this case.

Hypothesis β) will be deemed to be confirmed if the resulting value Spearman correlation coefficient greater than 0.7, and with reference to a relationship determination in the interval | 0.7 - 1 | as very strong to perfect (De Vaus, 2002).

For assessing the validity of the hypothesis γ) regions with a higher risk of social exclusion pay attention to this issue in their strategic development documents where they devote larger funds from their budgets to its prevention and resolution. They are

a) subject to the content of the strategic development documents of the individual regions in order to find out whether direct or indirect attention is paid to them,

b) the budget items of the budget relevant to the prevention or resolution of social exclusion are selected, namely:

- social care services; social prevention services; social care and help for children and youth; welfare and marriage and family support; social counselling; social rehabilitation and other welfare and assistance; other social affairs and employment policies;
- prevention of drugs, alcohol, nicotine and other addictions; other special health care;
- communal services and territorial development not elsewhere classified;
- security and public order.

The actual expenditures for 2016 are analysed. The data source is the state treasury monitor (Ministry of Finance, 2018). For the sake of comparability, the budget expenditure is converted per one inhabitant of the region and compares both the absolute level of selected expenditure budget items and their share of the total budget expenditure per capita. Subsequently, the internal structure of the selected expenditure budget items is also assessed, which for the sake of simplicity is classified into four segments: social area, prevention of dependencies, communal services and security and public order as outlined above.

Hypothesis γ) will be deemed to be confirmed, if the regions whose sum of standardized values of the indicators in 2016 is less than average, pay in their strategic documents direct attention to social exclusion, while the share of their selected expenditure budget per capita will exceed the average for all of the Czech Republic.

To indicate the regions of the Czech Republic, the abbreviations in Tab. 2:

Tab. 2 List of abbreviations used to designate regions of the Czech Republic

abbreviation	region	abbreviation	region
PHA	The Capital City of Prague	HKK	Hradec Kralove Region
STC	Central Bohemian Region	PAK	Pardubice Region
JHC	South Bohemian Region	VYS	Vysocina Region
PLK	Pilsen Region	JHM	South-Moravian Region
KVK	Karlovy Vary Region	OLK	Olomouc Region
ULK	Usti Region	ZLK	Zlin Region
LBK	Liberec Region	MSK	Moravian-Silesian Region

Source: own processing using the official regional abbreviations

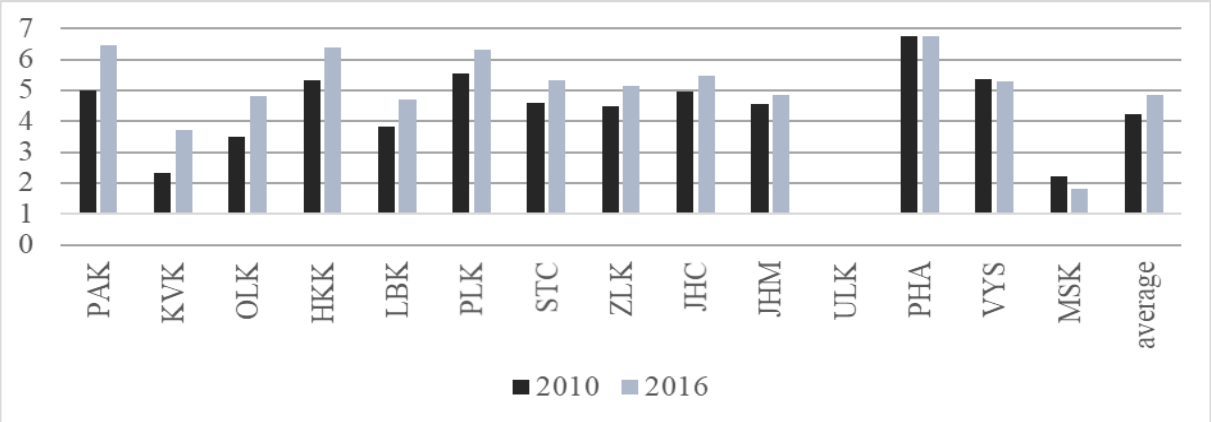
3 Problem solving

3.1 Interregional comparison of the state of the fight against social exclusion

Interregional comparison of the state of the fight against social exclusion aims, in particular, to verify the hypothesis α). This verification in the form of the sum of the standardized values of the relevant indicators (see Tab. 1) also includes the relative position of each region relative to each other. Fig. 1 presents the sums of the standardized values of the assessed indicators and their national average for the years 2010 and 2016. The regions are ranked according to the value of the change of the standardized values between 2010 and 2016 in descending order.

The best results in 2010 were achieved by the Capital City of Prague, the Pilsen Region, the Vysocina Region and the Hradec Kralove Region. The regions with the worst results were the Usti Region, the Moravian-Silesian and the Karlovy Vary Regions. In 2016, the best results are the same as in 2010 for the Capital City of Prague, after the Pardubice Region (most positive change in the reporting period), the Hradec Kralove and the Pilsen Regions. The Moravian-Silesian and the Usti Regions are also among the worst performing regions, as in the previous period.

Fig. 1: The sum of standardized values in 2010 and 2016



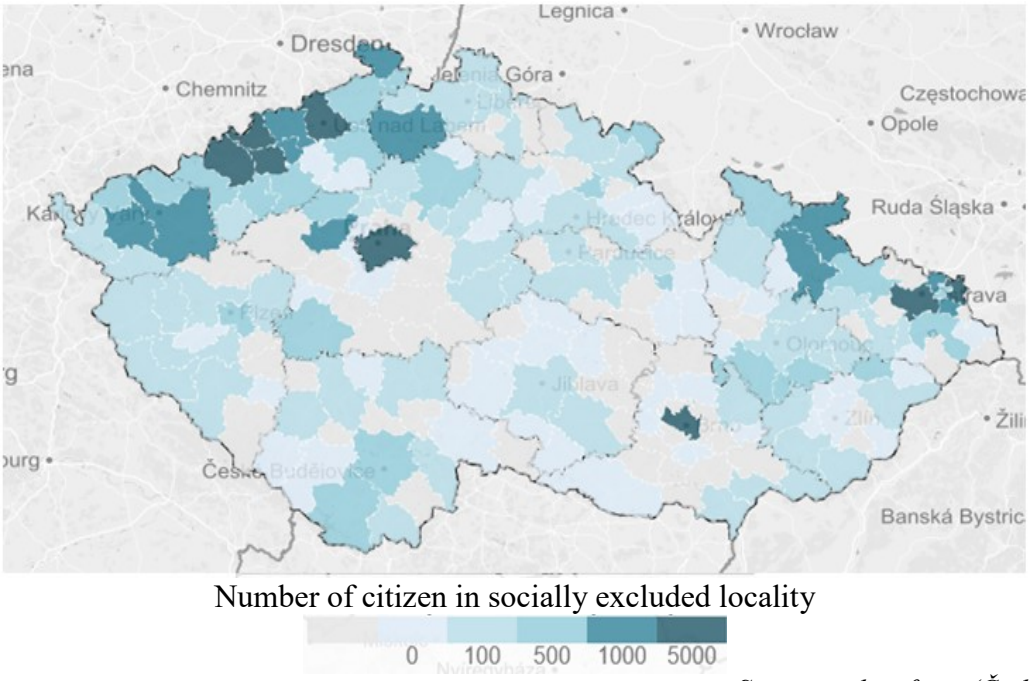
Source: own processing based on (Klimešová, 2018)

The average of standardized values for the Czech Republic was 4.3 in 2010 and rose to 4.9 by 2016. Regions that did not reach the national average in 2010 did not reach it even in 2016. The Usti Region, the Moravian-Silesian Region and the Karlovy Vary Region, where the situation was the worst in 2010, significantly improved the Karlovy Vary Region, the situation in the Usti Region stayed almost unchanged and the Moravian-Silesian Region was even worse.

3.2 The correlation rate between the state of the fight against social exclusion and the number of socially excluded localities

In 2015, socially excluded localities were identified in virtually all regions of the Czech Republic, in total in 297 municipalities (Čada, 2015). At least these localities are located in the Capital City of Prague, which, however, has the highest average number of residents per socially excluded locality (971). Over 100 residents of one socially excluded area are on average in the Usti Region (an average of 471 people in 89 localities) in the Moravian-Silesian Region (an average of 317 people in 72 localities) and in the Karlovy Vary Region (an average of 120 people in 61 localities). The regional intensity of this type of social exclusion is shown in Fig. 2.

Fig. 2: Regional distribution of socially excluded localities in the Czech Republic in 2015



Source: taken from (Čada, 2015)

Spearman correlation coefficient between the sum of the standardized indicator values relevant for assessing the state of the fight against social exclusion and the number of socially excluded localities in the region reaches the value of 0.79, indicating according to the scale De Vaus (2002), a very strong correlation between the two variables.

3.3 Regional's approaches to the prevention and solution of social exclusion

The analysis is carried out for all 14 regions, however, for verifying hypothesis γ) which assumes that regions with higher levels of threat to social exclusion in their strategic development documents pay direct attention to this issue and devote more funds to their prevention and solutions from their budgets, it is necessary to pay attention to the regions: the Usti Region (1.03), the Moravian-Silesian Region (1.81), the Karlovy Vary Region (3.7), Liberec Region (4.69) and Olomouc Region (4.83), whose sums of the standardized values of the relevant indicators - shown in brackets - do not reach the average of 2016 for all regions, i.e. 4.86 (It is worth mentioning that the average value corresponds to the situation in the South Moravian Region.).

3.3.1 The fight against social exclusion in strategic regional development documents

According to the Act No. 248/2000 Coll., on support to regional development, as amended (CR, 2000) each region handles its territorial development strategy. The territorial development strategy determines the focus and objectives of the region's development with regard to balanced development and sets the conditions for the fulfilment and achieving of the given objectives. Tab. 3 contains the result of the content analysis of the documents, i.e. the method of direct/indirect incorporation of the issue, as well as the brief content of its solution.

Tab. 3: Method of integration social exclusion issues into regional development strategies

Region	The current strategy of the region's development concerning social exclusion
PHA	directly support for families, dignified aging, accessibility of housing, integration of people with disabilities, social inclusion and integration of foreigners, reduction of the number of people at risk of poverty and social exclusion, quality and relevance of education, reduction of the number of young people unemployed and out of education, resistance to social, socio-demographic and other crises, reducing crime rates
STC	indirectly objectives eliminating the causes - increase of employment, reduction of long-term unemployment, employment of disadvantaged persons in the labour market, support of housing, increase of security through reduction of crime, support of education, quality of social and health care
JCK	indirectly social objectives, housing, crime prevention
PLK	indirectly appeal to the attention of assistance to persons socially excluded or persons at risk of social exclusion and poverty, particularly by promoting their inclusion by increasing the availability of social services, supporting the construction of social housing
KVK	directly the creation of sufficient and well-functioning network of social services for people who are socially excluded or at risk of social exclusion throughout the region, as well as measures to promote education, employment and health care
ULK	directly the fight against social exclusion, especially against the concentration of socially excluded persons or persons at risk of social exclusion, which creates an environment with higher rates of negative social phenomena, increasing the employability of the labour market and its actors, increasing employment and employability, job creation, promotion of education, access to quality social and health services, improving the facilities of disadvantaged parts of the region
LBK	directly the aim is to ensure that people at risk of social exclusion and those living with risky lifestyles have the conditions for integration into society; especially employability and employment, the availability of quality health care and social services, the availability of quality housing, security
HKK	indirectly objectives eliminating the causes - increase of employment, educational structures, support of social integration of the population with emphasis on prevention, development of social services and social economy
PAK	indirectly objectives eliminating the causes - quality education system in relation to employability, quality and availability of health facilities and social services
VYS	directly focusing on the prevention of addictions and social marginalization - appropriate structure of primary, secondary and tertiary prevention of addictions, improving the cohesion of local communities, strengthening the integration of groups at risk of social exclusion, increase citizens' sense of security, reducing crime rate and serious crime

JHM	indirectly ensuring quality, accessible and personal social services and health care, reducing the risk of social exclusion and exclusion from the labour market of vulnerable target groups, improving the health of the population, increase in education with the deepening of its ties to the labour market, combating crime
OLK	directly the objective of mitigating social exclusion, combating the concentration of socially excluded persons or persons at risk of social exclusion, which creates an environment with higher rates of negative social phenomena, improving the quality of education, health, promotion of employment, improvement of social services
ZLK	directly increasing the employability of specific population groups, supporting the integration of socially disadvantaged groups, people with disabilities and Roma minorities into society, optimizing social and health services, activities to ensure the protection of children's rights and needs
MSK	directly emphasis on quality healthcare, targeted social services and the successful fight against poverty, the reduction of long-term unemployment, unemployment rate, increase the qualifications of the workforce and increase the educational structure, the quality of health services, social services network, support for families, children and foster care, reducing the impact poverty

Source: own processing using (Institute of Planning and Development of Prague, 2016; Central Bohemian Region, 2014; South Bohemian Region, 2014; Pilsen Region, 2014; Karlovy Vary Region, 2014; Usti Region, 2013; Liberec Region, 2014; Hradec Kralove Region, 2016; Pardubice Region, 2014; Vysocina Region, 2015; South Moravian Region, 2014; Olomouc Region, 2015; Zlin Region, 2012; Moravian-Silesian Region, 2012)

The analysis of the strategic documents of the development of the territorial area of the regions showed a different approach of the regions to the issue of social exclusion. In eight of 14 regions, this approach can be characterized as direct, and in addition to the monitored five (ULK, MSK, KVK, LBK and OLK), the Capital City of Prague, the Vysocina Region and the Zlin Region, which exceed their average sum of the standardized values of relevant indicators. In most cases, this issue is addressed in terms of economic, respectively social, only in 3 regions of the Czech Republic this issue is perceived as a security problem in the Usti, Olomouc and Moravian-Silesian Regions.

3.3.2 Financial provision to combat social exclusion by budgetary expenditures of the regions

The subject of the research was on the one hand the amount of expenditures of the region budget, which have the character of expenditures for the prevention and solution of social exclusion, per inhabitant of the region, as well as the percentage of total budget expenditure per capita, the reality for the year 2016. The average values can be used to assess the situation in individual regions, i.e. the average expenditures of regional budgets per capita total = 19.39 thousands of CZK; average expenditures on prevention and solution of social exclusion per capita = 1.61 thousands of CZK and average rate of last expenditure on total budget expenditures of regions = 8.24%. The situation in individual regions is mapped by Tab. 4.

Tab. 4: Budget expenditures of regions per capita total and on prevention and addressing social exclusion in 2016

Indicator / region	PHA	STC	JHC	PLK	KVK	ULK	LBK
Budget expenditure per capita (in thousands of CZK)	48.39	15.40	18.22	17.65	18.83	17.31	16.64
Expenditures on prevention and addressing social exclusion per capita (in thousands of CZK)	4.24	1.00	1.41	1.20	1.61	1.63	1.18
Rate of expenditures on prevention and social exclusion (in %)	8.77	6.50	7.72	6.79	8.56	9.41	7.10
Indicator / region	**HKK**	**PAK**	**VYS**	**JHM**	**OLK**	**ZLK**	**MSK**
Budget expenditure per capita (in thousands of CZK)	18.51	16.87	19.29	15.82	17.83	15.80	14.95
Expenditures on prevention and addressing social exclusion per capita (in thousands of CZK)	1.73	1.41	1.57	1.14	1.79	1.42	1.25
Rate of expenditures on prevention and social exclusion (%)	9.35	8.34	8.14	7.19	10.07	8.98	8.38

Source: own processing using the data (Ministry of Finance, 2018; CZSO, 2018)

The high average value of the total budget expenditures per capita is caused by the Capital City of Prague, the average value is most close to the Vysocina Region, with a difference of CZK 100 per capita. From the observed five regions (outlined) the average expenditure on prevention and solution of social exclusion per capita is not reached by the Liberec and the Moravian-Silesian Regions, in the Liberec Region this also applies to the amount of expenditures for prevention and solution of social exclusion in the total budget expenditures, although this value is exceeded in the Moravian-Silesian Region, but not significantly.

To compare the approaches of regions in the fight against social exclusion also analyses the structure of expenditure on prevention and solution of social exclusion in their four – in the methodology outlined - segments. The finding is captured by Tab. 5.

Tab. 5: Structure of expenditures for prevention and solution of social exclusion of regions in 2016 (in %)

Segment / region	PHA	STC	JHC	PLK	KVK	ULK	LBK
Security and public order	**37.43**	0.22	0.00	1.42	0.00	0.30	0.00
Public services	12.80	2.44	10.88	4.77	1.96	6.84	1.42
Prevention of addictions	**1.01**	0.00	0.85	0.41	0.00	0.01	0.00
Social area	48.76	97.33	88.27	93.40	98.04	92.86	98.58
Segment / region	**HKK**	**PAK**	**VYS**	**JHM**	**OLK**	**ZLK**	**MSK**
Security and public order	0.21	0.06	0.45	0.37	0.00	0.12	0.80
Public services	**14.13**	2.72	1.46	0.23	0.31	0.14	5.08
Prevention of addictions	0.07	0.08	0.27	0.86	0.23	0.17	0.33
Social area	85.59	97.14	97.83	98.55	99.45	**99.57**	93.79

Note: Bolded – the maximum values, underlined - the minimum value.

Source: own data processing (Ministry of Finance ČR, 2018; CZSO, 2018)

The performed structural analysis shows different approaches of the regions in the fight against social exclusion. Four of the counties (JHC, KVK, LBK, OLK) do not perceive too much a security aspect of this issue, they have zero expenditure on security and public order, while the Capital City of Prague (with its specific status of the region and the city at the same

time) expenditure exceeds more than one third of its funds. The segment of 'public services' shows high variability, the Capital City of Prague is not the first, but perhaps surprisingly the Hradec Kralove Region. The 'prevention of addictions' segment is subsidized in all regions by marginal expenditure: only the Capital City of Prague exceeds the one-percent threshold, on the contrary, in three regions this area is not financially secured at all. In all 14 regions, the 'social area' segment is dominated within the structure of expenditure presented to the fight against social exclusion; at least in the Capital City of Prague, where a significant part of the funds is allocated to the segment of 'security and public order'; the largest share is held by the 'social area' segment in the Zlin Region, immediately followed by the Karlovy Vary Region.

4 Discussion

Interregional comparisons of indicators relevant to combating social exclusion between 2010 and 2016 show improvements in 12 regions, most notably in the Pardubice Region, Karlovy Vary and Olomouc Regions. In the Capital City of Prague and Usti Region, the situation has not changed significantly. The situation in the Vysocina Region has slightly deteriorated; in the Moravian-Silesian Region the worsening of the situation is not insignificant, it is over 0.4. In view of the above, the hypothesis α) that the state of the Czech Republic is improving in terms of the fight against social exclusion over time has been proven, because two of the 14 regions in 2016 amounted to a lower sum of the standardized values of the evaluated indicators than in 2010.

Very strong positive correlation between the poor situation in selected relevant indicators of the fight against social exclusion and the occurrence of socially excluded localities, leads to the conclusion that the hypothesis β) can be considered as validated. This could be an important incentive for regions with a higher intensity of socially excluded localities, given their frequency of occurrence and the number of people living in them. It can be expected that improving these relevant indicators will lead to the gradual elimination of socially excluded localities, which are one of the most serious problems of reducing the quality of life.

In view of the findings, hypothesis γ) (assuming that the regions with a higher risk of social exclusion in their strategic development documents pay direct attention to this issue and devote more funds from their budgets to its solutions) cannot be considered to be confirmed. Relevant five counties (ULK, MSK, KVK, LBK and OLK) have set their strategic development plans accordingly, but one of these regions (LBK) does not reach the average value of 8.24 thousand CZK per capita, selected budget items in the total budget of the region. Moreover, it would probably be a good idea to doubt the sufficiency of regional saturation share of these selected expenditures in the total budget for the Moravian-Silesian Region.

However, the issue here is not the allocation of state budget funds, which can greatly help in solving the affected regions, not only in terms of social transfers, but also in the allocation of state budget funds and EU Structural and Investment Funds in the restructuring of the economic base of the region.

Conclusion

The results presented by the analysis point to the continued existence of regional disparities in terms of social exclusion. Although the situation in the Czech Republic as a whole is favourable, there are regions where the positive impacts of the implemented actions are insufficient. It is important to pay attention to the individual elements (indicators) whose undesirable level can prevent social inclusion. In particular, however, it is necessary to focus on those, which are more closely linked to the existence of socially excluded localities. That is what the regional governments are aware of, as evidenced by their strategic development documents. However, some reserves are evident in the area of financial allocation of regional budget funds for tackling social exclusion and, in particular, for its prevention.

More detailed analysis of the relationship between sub-regional indicators relevant to combating social exclusion and the level of expenditures of the regional budget for the prevention and resolution of social exclusion would have to be established. In addition to a more detailed breakdown of the four segments of these expenditures, further research should include issues of targeted allocation from non-regional budgets, i.e. in particular the state budget and EU Structural and Investment Funds.

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PUBLIC EXPENDITURE IN THE LIGHT OF THE GRADUAL CHANGES IN THE EUROPEAN LABOUR MARKET

Magdalena Kotýnková, Mirka Wildmannová

Abstract: *During the second half of the 20th century significant changes in the structure and concept of the welfare state in Europe have emerged, mainly due to the changes in labour market. Since the 70s last century European labour market has passed gradual changes. Progressive implementation of labour-saving technologies, information and communication technologies changed economic activity and consequently the character and forms of work. The accompanying phenomenon of these changes in the labour market was growing uncertainty and the level of unemployment. People threatened by the unemployment, especially by the long term unemployment became dependant on social benefits. Multiple increase in public expenditure in the social sector emerged and welfare state has found itself in a crisis especially since the 90s of the last century when long term unemployment has risen significantly. Given the fiscal unsustainability of the current social systems, measures and reforms addressing the fiscal crisis of the welfare state are being introduced. The aim of this paper is to assess the dynamics of current social expenditure of the EU member countries in the light of the currant changes in the labour market and identify the fiscal trend.*

Keywords*: public expenditures, labour market, welfare state, social reform, unemployment.*

JEL Classification: *H53, I39, J20, J39.*

Introduction

Over a hundred years, the welfare state went through several stages, starting from the first insurance company systems through the 'golden era' of the 1960's to the current welfare state crisis. Evolution of the social systems in the individual countries differed to a large extent with respect to the voluntariness, i.e. insurance cover obligation related to various losses. The oldest compulsory insurance concerned occupational accidents and was introduced in several European countries before the end of the 19th century. On the contrary, unemployment insurance was often voluntary and in most cases became compulsory after Word War I. Compared to the European countries it must be stressed that liberal countries such as the USA and Canada established and developed the welfare state with a delay of several decades (Večeřa, 2001).

Since the past century, the European countries have gone through major social reforms. From the end of the 19th century, Europe has been one of the most dynamically developing continents in terms of social risk protection. Step by step the European welfare state started to evolving. The objective of the welfare state and the reason for its establishment was to protect families and individuals against social risks in the society. Traditionally, this concerns adequate income to cover basic needs at the time of sickness, old age, unemployment etc. Besides these traditional social risks, new risks started being discussed in the end of the 70s last century (the 70s). The most significant problems appeared to be changes in the labour market and lack of funds to operate all types of the welfare state related with all risks including the unemployment and especially the long term unemployment.

The period of social expansion (1962 – 1973), sometimes also called 'the golden era of welfare state', is characterised by growing productivity and related rising standard of living of all social classes and high employment rate, in some Western countries up to almost full

employment rate. Thanks to sufficient funds, the number of social benefits increased along with the amounts as well as the share of social expenses in the GDP (Smutek, 2005).

During the 70s, the welfare states started gradually stagnating with the main reason having been progressive implementation of labour-saving technologies, information and communication technologies (ICT) which have changed economic activity, the structure of production and afterwards the character and forms of work. The accompanying phenomenon of these changes in the labour market was growing uncertainty and the level of unemployment (Spieker, 1996).

The economic growth in mid-70's slumped to lower figures, whereas some countries had reached up to 5% annual GDP increase in the previous decades. The governments came up against great pressures of rising social expenditure related mainly to unemployment and other benefits, such as benefits in need. Given the setup of the social systems in the past and the very limited possibilities of limiting some of the public expenditure, i.e. in health system, education, social services, the increasing public expenditure share was accompanied by public debt. As a result of these as well as other factors such as the commencing population changes and population aging, the welfare states started struggling with the crisis which principally persists to the date. (Smutek, 2005)

The European social model is a topic to be discussed amongst experts on social and mainly fiscal policy. Most experts agree that given the labour market changes and fiscal crisis of economy it is necessary to change the view of the welfare state in Europe. Discussion over the welfare state phenomenon does not concern its existence, but rather how it should work, it means to what extent, in what arrangement, and how efficient it should be in the long run (Wildmannová, 2013). All this has an effect on financing and on the fiscal budgets.

Furthermore, next changes in labour market are expected in the context of the concept 'Industry 4.0' (Plattform Industrie 4.0, 2016)[1] . The term 'Industry 4.0' refers to digitising industrial production. The concept outlines the vision of a smart factory, which is characterised by the complete networking of all production processes and the increased use of robots, which control themselves. This developments should contribute to greater productivity and efficiency but consequently it is expected that the world of work is undergoing a major process of change. The robots are coming and if the forecasts are correct, it can mean the extinction for millions of jobs (Frey, 2013).

1 Methodology and data

The objective of this paper is to assess the dynamics of the current social expenditure of the EU Member States and identify their fiscal trend, including the consideration of budgetary expenditure in selected countries. The assessment of the current fiscal trends requires an analysis of social expenditure in a time series in the individual countries of Europe. We mainly draw upon the Eurostat databases. First and foremost, we also need to identify the main directions affecting the fiscal pressures in European social policies.

The paper is mainly centred around the opinions of leading European experts on welfare states, EU strategic documents and Eurostat and ILO statistics.

2 Discussion

It is necessary to identify the main reason affecting requirements of the welfare state. We have taken into our consideration primarily rising unemployment, especially long term

[1] Although the term 'Industry 4.0' is currently a top priority for many companies, research institutions and universities, a generally accepted understanding of the term does not exist. As a result, discussing the topic on an academic level is difficult. Generally speaking, the term means the vision of increasing digitisation of production based on the Internet of Things, Data and Services, sometimes called the Internet of Everything.

unemployment and labour market insecurity. People threatened by the unemployment and job insecurity have become dependant on social benefits and do not adequately contribute to the social system used to finance the benefits (Keller, 2009). Unemployment, long term unemployment and labour market insecurity have begun to rise due to changes in dependence between economic growth on one hand and volume and quality of workforce on the other hand, since the 70´s.

Industrial era dominated in Europe since the second half of the 19th century. However, at the beginning of the 70´s the structure of production, character and forms of work being changing with introduction of labour-saving technologies. Relations between economic growth and job creation has weakened. A side effect of increasing labour productivity has become unemployment which has been a commonly discussed problem in the EU countries. The call for a common fight against unemployment was firstly published in 1994 by the European Commission in the document Growth, Competitiveness, Employment – Challenges and Ways Forward for the 21th Century (European Commission, 1994).

Labour-saving technologies weakened job creation. Owing to that, the world of work changed dramatically, free workforce started to pass from the industry to the service sector. Gradually the whole structure of the economy has changed, services are becoming dominant namely both in the share in GDP and in employment. With the time production of material property stopped being crucial for the economic growth, but production of knowledge and algorithms together with flows of information and their application have been becoming the most important. This caused a change in the relation between the capital and paid work (Kotýnková, 2017).

If there had been a relation of mutual dependence between economic growth and volume and quality of workforce since the beginning of industrial era, in the last decades this interconnection ceases to be significant. The relation between economic growth and labour was separated which can be proved with the fact that the economic growth in the last decades of the 20th century started to be reached even when the number of vacancies stagnated or increased very slowly. Similarly the International Labour Organisation states that 1% economic growth encourages increase in new workplaces by 0.3% while the relation keeps weakening (ILO, 2014). The factor of work was becoming marginal in relation to the economic growth of the 70s.

Rapidly applied scientific inventions and findings help labour-saving technologies enter the work process and replace workers which is being reflected in increasing unemployment. The amount of jobseekers has been increasing since the 70s. At that time, the economic theory accepted a conception of so called natural unemployment rate where unemployment was considered being a natural phenomenon.

The conception of the natural unemployment rate supposed the existence of the lowest sustainable unemployment rate in long-term corresponding with a potential product. There is the question of such unemployment rate, which is typical of the economy at a certain stage of development. Milton Friedman by the criticism of Philips curve coming from mutual dependence of unemployment and inflation based on the premise that unemployment can be reduced despite higher inflation[2], stated that the dependence is true only for a short-term period. In the long term, the Philips curve is stabilised at a level of natural unemployment

[2] The Phillips curve represents the relationship between the rate of inflation and the unemployment rate. A. W. H. Phillips studied wage inflation and unemployment in the United Kingdom from 1861 to 1957 and found a consistent inverse relationship: when unemployment was high, wages increased slowly; when unemployment was low, wages rose rapidly. Thus, the Phillips curve represents an empirical model describing a historical inverse relationship between rates of unemployment and corresponding rates of inflation that result within an economy, Stated simply, decreased unemployment (i.e., increased levels of employment) in an economy will correlate with higher rates of inflation.

corresponding with a potential product. Efforts to reduce the natural unemployment rate by means of demand oriented economic policy of the government or the Central Bank will lead to the rise in inflation only (Friedman, 1998).

But in the course of time it seems that the natural rate of unemployment keeps increasing which might be caused not only by labour-saving technologies, but also by the overall change in the structure and character of work (move from the importance of material production to nonmaterial one). It expels not only low-level skilled workers, but also profession with mid-level skilled which is nowadays visible.

Currently, labour market future is discussed. The trigger of this discourse was the German concept Industry 4.0 (Plattform Industrie 4.0, 2016), which was first introduced in 2011[3] and followed by the concept Work 4.0 (Green Paper Work 4.0, 2016).The term 'Industry 4.0' was first introduced by the German Industry-Science Research Alliance in 2011. In 2012 the German Working Group on Industry 4.0 presented a set of recommendations to the German federal government. The Industry 4.0 workgroup members are recognized as the driving force behind Industry 4.0 (Bullinger, 2014).

Industry 4.0 is the vision of increasing digitisation of production. The concept describes how the Internet of Things, Data and Services will change production, logistics and work processes in the future (Kurz, 2016). The changes brought about by networking based on the Internet of Things, Data and Services have a greater impact than for industrial production alone because they affect not only economies, but also the world of work and social life as a whole. Industry 4.0 is more a vision than a reality, but it is already prepared to change not only industry, but also word of work. The world of work has been changing from the 70s last century and further changes are expected with the implementation of new innovations and technologies. The concept of Industry 4.0 is now shaping the digital discourse in Europe.

The robots are coming and if the forecasts are correct, it can mean the extinction for millions of jobs. Innovations may seem grandiose, but they can also be destructive, rendering entire professions obsolete even as they boost productivity and convenience. If widespread predictions are correct, automation in the workplace is set to increase at an unprecedented rate (Herman, 2014)

Many areas of manual work are being affected. Robots in factories and warehouses are becoming more mobile, versatile and affordable. It's not just manual labour that's ripe for automation: white-collar jobs are also at risk as software becomes more sophisticated. Data analysis work in areas such as advertising and finance is being outsourced to computers.

One issue that will loom ever larger as the incidence of automation increases, is income and social inequality. Automation is fundamentally the substitution of capital for labour. The problem is that the people who already have the capital are the ones who will benefit most, because they are the ones who will invest in the new automation. In other words, the rich will get richer and the rest will suffer. The Internationale Labour Organization (ILO) needs to respond to the future of the work ongoing changes in order to be able to advance its mandate for social justice. Therefore, the ILO has launched a four - year initiative at fostering discussion on the future of work named The Future of Work Centenary Initiative (ILO, 2016):

- In 2016 all ILO Members States were invited to undertake national 'future of work' dialogues structured around four 'centenary conversations':
    - Work and society,
    - Decent jobs for all,
    - The organization of work and production,

[3] Industry 4.0 is the vision of increasing digitisation of production. The concept describes how the Internet of Things, Data and Services[3] will change production, logistics and work processes in the future.

- The governance of work.

- In 2017 a High Level Global Commission on the Future of Work will be established. Its purpose will be to examine the output from the national dialogues and other input it may consider necessary. The Commission will publish a report and recommendations in the course of 2018.
- In the first half of 2019, all member States will be invited to organize events to mark the ILO's centenary and to discuss the Commission's report. The culmination of the 'Future of Work' initiative will be the 2019 International Labour Conference, with the possible adoption of a Centenary Declaration.

3 Results

Unemployment, especially long-term unemployment alongside with population aging are significant reasons of changing opinions on the role of the state in the field of social policies. However, it can be shown that the importance of the welfare state remains stable: trend in the social protection expenditure over time shows their growth.

According to the latest data from Eurostat, the statistical office of the European Union, the social protection expenditure reached 29% of the GDP in the European Union in the year 2015. Since 2006, these expenditure in the European Union has increased, from 25.6% of GDP in 2006 to 29.0% in 2015[4].

The EU average continued to mask major disparities between Member States. Traditionally, Europe was led by France with nearly 34% social expenditure in the GDP in the year 2015 and ranks amongst the top ones. Furthermore, Finland, Belgium, Denmark, Netherland, Italy, Austria, Sweden, Germany, Great Britain and Greece currently spend over one fourth of their GDP on social protection expenditure. In contrast, social protection expenditure stood below 20% in GDP in Romania and Latvia, Lithuania and Estonia, Ireland, Malta, Bulgaria and Slovakia, as well as in the Czech Republic. These disparities reflect differences in living standards, but are also indicative of the diversity of national social protection systems and of the economic, labour market, demographic, social and institutional structures specific to each Member State. For more details, see Tab. 1.

[4] In 2015, the two main sources of funding of social protection at EU level were social contributions, making up 54% of total receipts, and general government contributions from taxes at 43%.

Tab. 1: Total social expenditure as a percentage of GDP in the time period 1995 - 2015

Country	1995	2006	2008	2010	2012	2014	2015
EU 27	-*	-*	25.9	28.6	28.7	28.6	-*
EU 28	-*	25.7	25.9	28.8	28.7	28.6	29.0
Eurozone	-*	26.2	26.5	29.2	29.4	29.7	-*
Included:							
Belgium	27.3	26.6	27.7	29.4	29.6	30.2	30.3
Bulgaria	-*	13.8	14.7	17.0	16.6	18.5	17.9
Czech Republic	16.7	17.6	17.9	20.0	20.4	19.7	19.0
Denmark	31.9	28.4	28.9	32.4	32.0	32.8	32.3
Estonia	-*	12.0	14.7	17.6	15.0	15.1	16.4
Finland	31.4	25.4	25.1	29.3	30.1	31.9	31.6
France	30.3	30.4	30.4	32.9	33.5	34.2	33.9
Ireland	18.6	17.5	20.7	25.2	24.4	21.6	16.3
Italy	24.3	25.6	26.7	28.9	29.3	29.9	29.9
Lithuania	-*	13.3	15.9	19.0	16.2	15.2	15.5
Latvia	-*	11.9	12.1	18.3	14.4	14.4	14.9
Hungary	-*	21.9	22.3	22.5	21.3	19.8	20.0
Germany	28.3	27.8	27.1	29.8	28.7	29.0	29.1
Netherlands	30.6	26.5	26.4	29.7	31.0	30.9	30.2
Poland	-*	19.7	19.3	19.7	18.9	19.1	-*
Portugal	20.4	23.7	23.4	25.8	26.4	26.9	25.7
Austria	28.8	27.5	27.6	29.6	29.2	29.8	29.8
Greece	22.3	20.6	22.8	25.9	28.0	26.0	26.4
Slovakia	18.5	16.0	15.7	18.2	18.0	18.5	18.2
Slovenia	-*	22.3	21.0	24.4	24.9	23.9	23.8
United Kingdom	27.1	25.1	25.8	29.0	29.1	27.3	28.6
Spain	21.6	20.0	21.4	24.6	25.5	25.4	24.6
Sweden	33.5	28.6	27.7	28.6	29.3	29.5	29.2

* not available

Source: Eurostat, OECD, ILO

Unemployment, especially long-term unemployment alongside with population aging are significant reasons of changing opinions on the role of the state in the field of social policies. However, it can be shown that the importance of the welfare state remains stable: trend in the social protection expenditure over time shows their growth.

Eurostat data indicate long-term increase in the social protection expenditure. A rapid increase occurred at the time of the outbreak of the financial crisis between 2008 – 2010 which was accompanied by increasing unemployment. However, a slight increase continued in the following years.

Social protection expenditure per capita varies substantially across Member States. In 2015, social protection expenditure per capita in Purchasing Power Standards (PPS), which eliminates price level differences between countries, showed large differences between EU Member States. After Luxembourg, the highest expenditure per capita were recorded in Denmark and Austria. In contrast, the lowest spendings per capita were registered in Romania, Bulgaria and Latvia (under 3 thousands PPS).

Although there are common features in the evolution of the welfare state in the individual countries, for example the growing role of the state in social policy, rate of redistribution and provision of social services, there are also many differences between them. The scope of

social services differs depending on the economic conditions of the state, traditions, values and historic development[5].

Conclusion

The original welfare state was built on a well-functioning labor market, but new social risks emerged, which is unemployment, especially long-term unemployment. It can be said that the industrial era dominated in Europe since the second half of the 19th century ends today. Since the end of the 70s, economic activity and consequently the labour market have been changed by progressive implementation of labour-saving technologies, ICT and algorithms. The character of economic activity was changed and afterword character and forms of work were changed as well. These changes were accompanied by growing uncertainty of labour market and the level of unemployment.

Unemployment and uncertainty of the labour market started to grow at the 70s when labour-saving technologies appeared. These technologies weakened relations between economic growth and job creation. Owing to that, the world of work changed dramatically, free workforce started to pass from the industry to the service sector. Gradually the whole structure of the economy has changed, services are becoming dominant namely both in the share in GDP and in employment. With the time production of material property stopped being crucial for the economic growth, but production of knowledge and algorithms together with flows of information and their application have been becoming the most important

If there had been a relation of mutual dependence between economic growth and volume and quality of workforce typical of the industrial era, in the post-industrial era the interconnection does not go anymore (Baumann, 1998). The factor of work was becoming marginal in relation to the economic growth. The relation between economic growth and labour was separated which can be proved with the fact that the economic growth during the last decades of the 20th century started to be reached even when the number of vacancies stagnated or increased very slowly (European Commission, 1994). Similarly the International Organisation of Labour states that 1% economic growth encourages increase in new workplaces by 0.3% while the relation keeps weakening (ILO, 2013).

Europe keeps struggling with the high unemployment and with the problem of sustainability of the welfare state. People threatened by the unemployment become dependant on social benefits and do not adequately contribute to the social system used to finance the benefits. However, unemployment and job insecurities in the labour market have become a part of social and economic reality of Europe together with the increase of disadvantaged groups of population in the labour market. The social policy is one of the policies which is trying to treat families facing social problems with various social benefits and allowances.

The current social policy expenditure in the European countries have been kept at a high level for a long time. In most European countries, in particular the western ones, the expenditure exceeds 25% of the GDP, i.e. more than one-fourth of their economies. However, EU Member States are heterogeneous in terms of social aspects. One of the reasons for the increased EU heterogeneity was the EU expansion to the east. An example can be shown: the rate of social expenditure in France is 34% of GDP, while in Latvia only 15%. Europe diverges in social aspects not only because of the economic development of the individual countries but also as a result of various approaches to the social matters. The EU

[5] Currently, there are several welfare state typologies, literature most often quotes Danish social and political scientist Esping-Andersen, who divides welfare states based on the conception of solidarity amongst the citizens into three basic model: social – democratic, liberal and conservative - corporatist. British social scientist Titmuss divides the welfare state according to the criteria of solidarity into residual, institutional and performance types. Mishra's typology is based on the criteria of the rate of coordination of economic and social policy and distinguishes between two types of welfare state: integrated and disintegrated. (Musil, 1996)

Member States tend to be divided into groups based on the recognition and practicing of a different social expenditure philosophy and this is one of the reasons why the EU fails to achieve a single direction.

As emphasised by ILO expert, Daniel Vaughan-Whitehead (Vaughan-Whitehead, 2015), the European social model played a key role in shaping up the European society after the war by encouraging inclusive economic growth, high standard of living and decent working conditions. In some of the European countries the key elements of the European social model have been transformed in response to the crisis that began in 2008. As a result of the crisis it has turned out that the current form of the European social model is not sustainable. The European Commission as well as ILO have come to realize that certain elements of the European social model need to be transformed in light of such challenges such as high unemployment and society aging in Europe.

Therefore, it is presently necessary for the European Union to make a decision crucial to keep the European social model which has played a key role in stabilising economies and maintaining social contract.

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CATEGORIZATION OF IMPACTS OF GENERAL PERSONAL DATA PROTECTION REGULATION ON PUBLIC AUTHORITIES IN THE CZECH REPUBLIC

Tomáš Lechner, Radka Lechnerová

Abstract: *The paper deals with personal data protection, which is one of the fundamental rights. Currently, there is a change in the specific legislation of this area. The rules will be newly given by the Regulation (EU) 2016/679 of the European Parliament and of the Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (GDPR). The new enactment, coming into force in May this year, brings some new approaches, new duties and new tasks for all controllers processing personal data. In this paper, we analyse impacts of that new Regulation on public authorities and bodies to prepare the categorization of those impacts as the important background for our further research. We base this categorization not only on legal analysis of GDPR and related acts but also on analysis of supply of services related to GDPR implementation and analysis of published contracts that are covering these services.*

Keywords: *eGovernment, Personal Data Protection, Public Authorities, General Data Protection Regulation.*

JEL Classification*: K22, K23, M15, M35.*

Introduction

Protection of personal data is one of the fundamental rights proclaimed in the Charter of Fundamental Rights of the European Union as well as in the Charter of Fundamental Rights and Freedoms of the Czech Republic. The specific form of this protection is regulated, both at national and European level, by other legislation. In this year, especially on 25th May, the new legal regulation of this area comes into force in the form of the Regulation (EU) 2016/679 of the European Parliament and of the Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). This new enactment, commonly called GDRP, reflects the development of information and communication technologies. Thus, it is an evolution but not revolution change (see for example [1], [8], [14]). The GDPR changes certain procedures in the area of personal data protection and brings new obligations.

The GDPR unifies the rules on the personal data protection across the European Union. The extent of the changes that Member States have to implement depends on their previous national legislation. These legal regulations implemented the previous directive, but of course, they could go further in some details. The Czech legislation was one of the more rigorous regulations, but on the other hand, the extent of the newly introduced obligations and tasks is not small. All personal data controllers and processors, both private and public ones, must implement appropriate technical and organizational measures to reduce the risks connected with each personal data processing. The fact that this is not a simple matter is proved by a number of different guidelines, recommendations, and best practices published at the European level by the WP29 working group [2], and at the national level by the Office for Personal Data Protection and various ministries, especially Ministry of Interior [12], Ministry of Education, Youth and Sports [10] and Ministry of Industry and Trade [11].

The aim of this paper is to sort impacts of the GDPR, i.e. new obligations and new tasks, into separate categories. This categorization can have general validation, but because we

focus on public authorities and bodies, we clarify categorization precisely with respect to these subjects. It means also one the first steps in our large-scale research of impacts of GDPR during the first years after coming into force.

1 Problem formulation

1.1 Development of Personal Data Protection

Protection of personal data as one of the fundamental rights is proclaimed in the Charter of Fundamental Rights and Freedoms of the Czech Republic, which means that there has been given appropriate attention to the personal data protection during the whole modern history of our republic. The specific form of this fundamental right is governed by various laws. The right to the personal data protections is sometimes mistakenly interchanged with the protection of personality [4]. It should be noted that the right to protection of personal data applies only to information that we may qualify as personal information [9].

The right to the protection of personal data is not an absolute right; it must be considered in relation to its function in society and be balanced against other fundamental rights, in accordance with the proportionality principle. But it is indisputable that any processing of personal data should be lawful, fair, and transparent. The personal data should be adequate, relevant and limited to what is necessary for the purposes for which they are processed. Personal data should be processed in a manner that ensures appropriate security and confidentiality of the personal data, including for preventing unauthorised access to or use of personal data and the equipment used for the processing (see also the preamble of the GDPR).

In the year of 1995, the Directive 95/46/EC of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data, was adopted. This Directive specified protection of personal data in a manner adequate to the current developments under way, in the framework of the information society, of the techniques used to capture, transmit, manipulate, record, store or communicate sound and image data relating to natural persons. This Directive was implemented into the Czech legal system in the form of the Act No. 101/2000 Coll., on personal data protection. According to Article 3 of this Directive, it shall apply to the processing of personal data wholly or partly by automatic means, and to the processing otherwise than by automatic means of personal data which form part of a filing system or are intended to form part of a filing system. This Directive was already independent of used techniques (See also [3]).

The development of information and communication technologies can be characterized by attributes such as fast, constant and in the long term also often difficult to predict [6], and this could be also applied to public administration [7]. The law must appropriately respond to this development [13]. In the area of personal data protection, the Regulation (EU) 2016/679 of the European Parliament and of the Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (GDPR), is the current response.

1.2 General Data Protection Regulation

The GDPR was adopted on 27th April, 2016, but it comes into force on 25th May this year. It suggests that it is not a simply amendment. As it was mentioned, the new Regulation brings an evolution change in the area of personal data protection, but on the other hand it is connected with new approaches, new obligations and new tasks for all controllers and processors processing personal data. It is based on the assumption that the principles of, and rules on the protection of natural persons with regard to the processing of their personal data should, whatever their nationality or residence, respect their fundamental rights and freedoms, in particular their right to the protection of personal data. As it is written in the preamble of

the GDPR, this Regulation is intended to contribute to the accomplishment of an area of freedom, security and justice and of an economic union, to economic and social progress, to the strengthening and the convergence of the economies within the internal market, and to the well-being of natural persons.

There were published several general analyses of the GDPR, such as [5], [8], [14] or [15]. Everyone agrees that abolishing of indiscriminate general notification obligations as well as connected principles based on declaratory fulfilment with previous Directive, and introduction of the new approach based on risk analysis is a good change. The GDPR has six general data protection principles, specifically, fairness and lawfulness, purpose limitation; data minimisation, accuracy, storage limitation, and integrity and confidentiality (See also [5]). It should be mentioned, that data protection ‘ design’ and ‘default’ is at the core of the GDPR (For more details see [15]). The other important principle is the principle of proportionality, which is defined, for example, in the Article 25 in the connection with protection by design and default:

‘Taking into account the state of the art, the cost of implementation and the nature, scope, context and purposes of processing as well as the risks of varying likelihood and severity for rights and freedoms of natural persons posed by the processing, the controller shall, both at the time of the determination of the means for processing and at the time of the processing itself, implement appropriate technical and organisational measures, such as pseudonymisation, which are designed to implement data-protection principles, such as data minimisation, in an effective manner and to integrate the necessary safeguards into the processing in order to meet the requirements of this Regulation and protect the rights of data subjects.’

In the GDPR six conditions for lawfulness of processing is mentioned. They are namely:

- the data subject has given consent to the processing;
- processing is necessary for the performance of a contract;
- processing is necessary for compliance with a legal obligation to which the controller is subject;
- processing is necessary in order to protect the vital interests of the data subject;
- processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller;
- processing is necessary for the purposes of the legitimate interests pursued by the controller.

Let's summarize that. New approaches are mainly personal data protection based on risk analysis and a change in preferred conditions for lawfulness of processing. One of the main new obligations is that the controller should be obliged to implement appropriate and effective measures and be able to demonstrate the compliance of processing activities with the GDPR, including the effectiveness of the measures. The other obligations are especially designating a Data Protection Officer and notification of a personal data breach to the supervisory authority. New tasks are mainly data protection impact assessment, maintaining a record of processing activities, and obligations to ensure new rights of the data subject.

The question is what it all means for public authorities and bodies in the Czech Republic. Let’s it analysed.

1.3 The Role of Categorization in Our Wider Research

The GDPR replaces the 20-year-old legislation and unifies the relevant rules for the European Union. However, it is a question whether this regulation induces an increase in data

subject protection or whether it only increases the administrative burden of controllers and processors and thus reduces competitiveness of the European Union. The first years of this new Regulation after coming into force will be crucial for finding a response to this question. We want to find an answer to that question by means of several researches whose goals are to analyse the specific economic, legal and other related impacts of this Regulation on various subjects in the Czech Republic. One of these researches is survey related to actual security, technical and organisational, measures implemented by public authorities. Having regard to the different situation in the state administration and self-government, and having regard to the wide variety of public authorities and bodies, and having regard to the dependence of appropriate measures on the extent of processing of sensitive personal data (for example in the health sector), we will focus on each kind of public authorities and bodies separately. The first our focus will be on municipalities, which are by the way the most numerous group of public authorities.

In planned large-scale research, it is important to map the current situation. In this paper, we are focusing on obtaining background data for a questionnaire survey that will focus on municipalities. We start with municipalities with extended powers because of their obligation to publish contracts. For the compilation of working hypotheses, we need to determine the relevant variables and the predicted relationships between them. In this context, the analysis of publicly available resources related to GDPR-related offered services will be helpful. This analysis is primarily indicative in order to create background data for our next step, which is the adequate design of measurement tools. One of them will be the questionnaire survey. To be able to design this survey as quality as possible we do this first research, which results are presented in this paper.

2 Methodology

To categorization of impacts of general data protection regulation on public authorities in the Czech Republic and to obtain background data for our next research, we use four base methods. The first one is legal analysis of the GDPR and guidelines, recommendations, and best practices published especially by the Office for Personal Data Protection and various ministries, especially Ministry of Interior [12], Ministry of Education, Youth and Sports [10] and Ministry of Industry and Trade [11]. The result of this first part will be the categorization of impacts of GDPR.

The second method is an analysis of supply. An analysis of supply we base on publicly available resources, especially offering services, which are presented on the Internet. The results of that analysis will be the determination of the basic prices of the GDPR-related offered services. We are aware that only a small part of this specific information is public and is not subject to business secrets. That's why we use the third method based on the examination of published contracts. According to Act No. 340/2015 Coll., on Registry of Contracts, some public authorities have to publish concluded contracts as the condition of their validation. The rules for this obligation are a little bit complicated, but we can simplify them to the statement that all municipalities with extended powers (and some other public authorities and bodies, such as ministries, state enterprises, regions and so on) have to do that for all contract that are expensive than 50 thousand CZK in the term of 5 years. That is why the Registry of Contracts is good source for our research. The second and the third methods follow up on previous legal analysis, because we should know what to find (on Internet or in contracts).

The fourth method is a basic statistic, mainly minimum, maximum, average, etc., of observed data. This give us good background data for our next research, i.e., we are aware that is give us intervals, borders and order estimates, but it can´t answer the whole question about effectiveness of the new Regulation.

3 Results

3.1 Law analysis

The General Data Protection Regulation defines, as the other legal regulations, the general principles of regulated area. According to the Article 5 these general principles of personal data protection are lawfulness, fairness and transparency, purpose limitation, data minimisation, accuracy, storage limitation, integrity and confidentiality and accountability. The other principles are data protection by design and data protection by default. All the measures including minimising the processing of personal data, pseudonymising personal data as soon as possible, transparency with regard to the functions and processing of personal data, enabling the data subject to monitor the data processing, should be implement with respect to state of the art, the cost of implementation and the nature, scope, context and purposes of processing as well as the risks of varying likelihood and severity for rights and freedoms of natural persons posed by the processing.

If we want to investigate concrete impacts of GDPR on public authorities in the Czech Republic, we should identify steps, which authorities must do to became GDPR compatible. Because personal data protection is newly based on risk analysis of severity for rights and freedoms of natural persons posed by the processing, the first step should be performing the appropriate analysis. This fact also follows from all recommendations published by various ministries, see [10], [11] and [12]. That analysis can be performed by organization itself or it could be outsourced. Both possibilities are connected with some kind of costs, but only the second way could be explicitly quantified in this research. If the analysis is performed by organization itself, the appropriate costs would be found only in our follow-up questionnaire survey.

Privacy issues is very wide and complicated, that is why the implementation of the GDPR must be connected with training. This training has two levels. The first one is for top management and authorized persons of controllers and processors. They must decide how necessary steps will be performed, and they need information for that decision. The other level is connected with responsibility of controllers and processors as it is defined by the Article 24 (1) of the GDPR: 'Taking into account the nature, scope, context and purposes of processing as well as the risks of varying likelihood and severity for the rights and freedoms of natural persons, the controller shall implement appropriate technical and organisational measures to ensure and to be able to demonstrate that processing is performed in accordance with this Regulation. Those measures shall be reviewed and updated where necessary.' Is also means that all staff who process personal data must be trained. That is the second mentioned level of training. Whereas the first level is almost outsourced, for the second level both possibilities (inside or outside training) are acceptable.

Inside training can be provided by Data Protection Officer, if the controller or the processor have designated him or her. According to the Article 37 of the GDPR the controller and the processor shall designate a data protection officer in any case where:

- the processing is carried out by a public authority or body, except for courts acting in their judicial capacity;
- the core activities of the controller or the processor consist of processing operations which, by virtue of their nature, their scope and/or their purposes, require regular and systematic monitoring of data subjects on a large scale; or
- the core activities of the controller or the processor consist of processing on a large scale of special categories of data pursuant to the Article 9, which means personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and the processing of genetic data, biometric

data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person's sex life or sexual orientation, and personal data relating to criminal convictions and offences referred to in the Article 10, which means, by the way, processing under the control of official authority or processing authorised by Union or Member State law providing for appropriate safeguards for the rights and freedoms of data subjects.

Thus, in the case of public authorities, including municipalities, Data Protection Officer costs are indisputable part of GDPR-related costs.

As it was more than once mentioned, the controller or the processor shall implement appropriate technical and organisational measures. Technical measures are typically connected with update of used information systems. These updates can be covered by maintenance contracts, thus they need not to imply any other costs. But it depends on the quality of theses maintenance contracts as it is mentioned in [12]. That is why we also include costs of necessary update of information systems into our research.

Because the GDPR applies also to the processing other than by automated means of personal data which form part of a filing system or are intended to form part of a filing system (see Article 2(1) of the GDPR), the technical measures also mean physical security, such as lockable cabinets, security door, safes and so on. In our research we call that kind of costs generally 'furniture'.

The last but not least we should mention that organisational measures seems to be more important than technical one. In other word, technical measures without appropriate organisational ones do not work. Organisational measures must be incorporated into internal directives to be documented, which is one of the principle introduced by the GDPR. Thus, the appropriate change of internal directives of controllers and processors affects the last cost category, which we can identify. But in the next analysis it is hard to separate costs of general GDPR analysis of controllers and processors and costs of induced update of internal directives. Both are usually aggregated together.

3.2 Supply Analysis and Cost Analysis

As the result of supply analysis, we only observed data related to training, seminars and conferences. Price offers of other GDPR-related services are subject to business secrets and are available at the Internet. The price of GDPR-related training, seminars and conferences varies from 1.5 to 10 thousand CZK for one-day event for one person. In addition, some trainings are held by individual ministries. These training are mostly free of charge. Multi-person training is mostly offered in the form of e-learning. The price is either fixed per organization or set as a unit price. The price for the whole organization starts at 10 thousand CZK and naturally increase with increasing size of the organization. The unit price is ranging from 1 to 3 thousand CZK per one trainee.

More results we observed from examination of the Registry of Contracts. We found about 145 contracts published by municipalities with extended powers that are covering GDPR-related services. And about 155 other contracts covering these services published by other public authorities and bodies, such as ministries, state enterprises, regions, schools and so on. The only problem is that most of these contracts covers more than one service, but because of business secret they are anonymized and that is why we can´t divide total price into partial prices of individual services in these cases. Because of primarily indicative character of our research it is possible to use equally division in these cases.

The descriptive statistics of total costs of GDPR-related services based on contracts published by municipalities with extended powers aggregated for each municipality are shown in Tabl. 1. It is obvious that standard deviation is really high in spite of the fact that we have selected only one type of municipalities.

Tab. 1: Descriptive statistics of total GDPR-related services costs aggregated for each municipality

Count of municipalities	91
Expected value	668 461 CZK
Median	250 470 CZK
Minimum	7 360 CZK
Maximum	24 547 357 CZK
Standard deviation	2 572 895 CZK

Source: (own calculation based on an analysis of the Registry of Contracts)

The division of total contractual costs into separate GDPR-related services costs is shown in Tab. 2. The dispersion is also caused by the fact that there can be mixed one-off prices and aggregate 5-years prices, which cannot be distinguished in the contracts published in the Registry of Contracts.

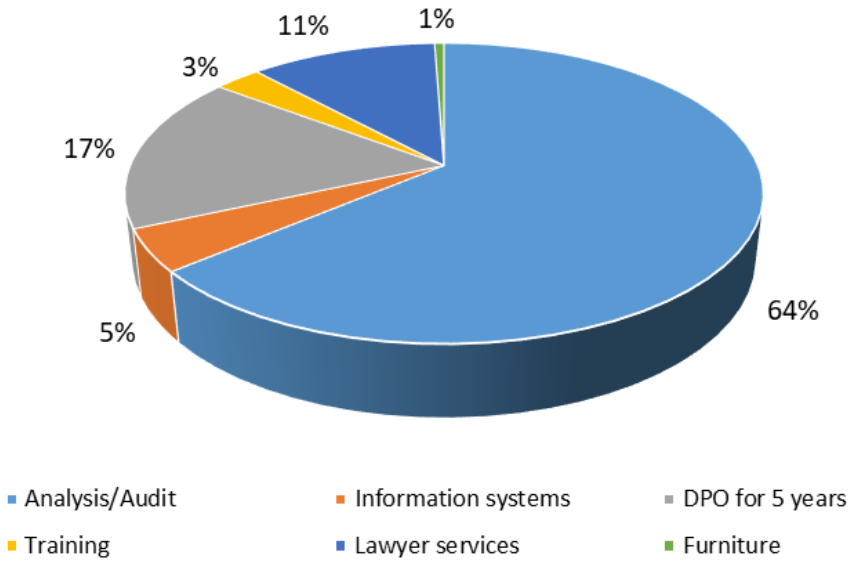
Tab. 2: Intervals of separated GDPR-related services costs

Type of service	Minimum	Maximum
Analysis of GDPR impact on organisation + Audit	18 630 CZK	1 645 600 CZK
Training	52 000 CZK	264 000 CZK
Update of information systems	63 000 CZK	766 333 CZK
Data Protection Officer	7 360 CZK	2 323 200 CZK
Furniture and other physical security	182 069 CZK	182 069 CZK
Lawyer services	99 000 CZK	5 328 840 CZK

Source: (own calculation based on an analysis of the Registry of Contracts)

The interesting results can be seen in a frequency analysis of individual services included in contracts. The chart of that analysis is shown in Fig. 1.

Fig. 1: Frequency analysis of individual services included in contracts



Source: (own calculation based on an analysis of the Registry of Contracts)

In addition to municipalities with extended powers, we also analysed contracts of some other public authorities and bodies. General results are shown in Tab. 3. As it was mentioned,

it is hard to separate prices for each kind of GDPR-related service, that is why we compare only total contractual costs.

Tab. 3: Intervals of total GDPR-related service cost per contract

Type of public authority	Minimum	Maximum
Funded organizations	1 850 CZK	2 299 000 CZK
State enterprises	57 500 CZK	2 242 500 CZK
Voluntary unions of municipalities	102 350 CZK	107 870 CZK
Regions	8 211 CZK	1 439 900 CZK
Municipalities and city districts	7 360 CZK	5 328 840 CZK
Ministries	46 000 CZK	1 185 580 CZK
Schools	2 875 CZK	1 984 279 CZK
Others	17 250 CZK	5 324 500 CZK

Source: (own calculation based on an analysis of the Registry of Contracts)

4 Discussion

By means of legal analysis, we have identified sever types of services, which are connected with GDPR implementation. These services are namely: Analysis and audit, Training, Update of information systems, Data Protection Officer, Furniture and other physical security and Update of internal directives. If we compare that categories with content of contracts published in the Registry of Contracts and related to the GDPR, we find one more category, which is lawyer services. This kind of service could cover update of internal directives as well, but it has wider purpose. That is why we suppose that the adequate conclusion of the categorization impacts of general data protection regulation on public authorities in the Czech Republic is summarized in the Tab. 2. In other words, lawyer services include also update of internal directives and in a way, that is not distinguishable in terms of cost.

By means of next investigation we have found order estimates of GDPR-related services costs. The first result, which can be seen from the presented values, is that there is relatively great dispersion of these costs. Whereas the minimal total GDPR-related services cost is less than 10 thousand CZK, the maximal cost of these services is almost 25 million CZK. It shows that there is strong dependency on different properties of public authorities. Of course, we cannot currently answer, which properties, but we can assume that one of them would be the size. As it cloud be seen from Tab. 3, this result (relatively great dispersion of total GDPR-related services costs) is almost the same for different types of public authorities. The only one category without that great dispersion of these costs is voluntary unions of municipalities.

The third observation, which should be discussed, is a frequency analysis of different services included in contracts as it is shown in Fig. 1. Is can be seen which is the main task that is currently being carried out by municipalities with extended powers. Almost two thirds of all contracts cover service of analysis and audit. Let's remind that it is about number of services, but not about total cost. The most expensive service is lawyer service, which is, on the other hand, included only in 11 % of contracts. The service of Data Protection Officer is relatively significant in terms of the number of contracts and the total cost. It is the second most common service. While the service related to physical security is the least frequent. These results could likely change in the time. Thus, it should be interesting to repeat this analysis in several months.

Conclusion

The new regulation of personal data protection (GDPR) has wide impacts of all subjects. It is a question whether this Regulation induces an increase in data subject protection or whether it only increases the administrative burden of controllers and processors. The first years of this new Regulation after coming into force will be crucial for finding a response to this question. Because we want to investigate this area, we have prepared for large-scale research before the GDPR come into force. The first results of our research have been presented in this paper. We categorized impacts of the GDPR on public authorities in the Czech Republic and we found intervals and order estimates of GDPR-related services costs. We are aware that it is the first step, which cannot answer the whole question about effectiveness of the new Regulation, but it is very useful for next steps in our further research.

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QUALITY OF GOVERNMENT - ANALYSIS OF THE INFLUENCE OF SELECTED ECONOMIC AND SOCIAL FACTORS

Radka Malinová, Veronika Linhartová

Abstract: *The demand for high quality of government is currently a necessary part of modern democracies and economies. It is assumed that the quality of governance affects not only economic growth but also number of other factors. There are many different approaches to defining quality of government. The research conducted by The World Bank and The Quality of Government Institute, University of Gothenburg, are recently probably most important. Using the European Quality of Government Index and correlation analysis tool, the authors of this article test the relationship of a dependency between the quality of management and selected economic and social indicators.*

Keywords: *quality of government, European Quality of Government Index, standard of living, level of education, GINI Index, Worldwide Governance Indicators.*

JEL Classification*: D73, H11, H83.*

Introduction

The quality of government is an essential part of modern democracies and economics. According to former UN Secretary-General Kofi Annan, good government is probably the most important means of fighting poverty and strengthening social and economic development (Rothstein, 2015: 10-11). This has been also confirmed by expert studies on the correlation between quality of government and a range of societal fields, from economic inequality and gender inequality to unemployment and level of education among the society, child mortality and social trust issues (Charron, Lapuente, Rothstein, 2018).

The authors of the paper aim to undertake an analysis of the relation between the quality of government and selected economic and social factors. By using statistical analysis tools, they attempt to answer the question of whether there is a correlation between the quality of government and the standard of living in a given country, the level of public spending or the level of education or social differences in society.

1 Statement of a problem

1.1 Definition of the quality of government

Although there is consensus among experts that the quality of government needs to be given special importance, the approaches to its definition differ significantly. Thus, until today, there is no unified definition accepted by lay and professional public. The authors of the article use the methods for quantification the quality of government based on the World Bank research and The Quality of Government Institute (hereinafter referred to as 'the Institute'). Research conducted by the Institute and the World Bank are considered by the experts to be high-quality (e.g. Volejníková, 2006).

1.1.1 The quality of government *according* to the World Bank

According to the World Bank the governance consists of the traditions and institutions by which authority in a country is exercised. This includes 1) the process by which governments are selected, monitored and replaced; 2) the capacity of the government to effectively formulate and implement sound policies; and 3) the respect of citizens and the state for the institutions that govern economic and social interactions among them (Kaufmann, Kraay, Mastruzzi, 2010a).

The World Bank (Kaufmann, Kraay, Mastruzzi, 2010b) defines and classify the quality of government through the three above mentioned areas using the following indicator:

1) The process by which governments are selected, monitored and replaced
    a. **Voice and Accountability (hereinafter referred to as 'VA')** – the indicator related to the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
    b. **Political Stability and Absence of Violence/Terrorism (hereinafter referred to as 'PV')** – the indicator related to the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.
2) The capacity of the government to effectively formulate and implement sound policies
    a. **Government Effectiveness (hereinafter referred to as 'GE')** – the indicator related to the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
    b. **Regulatory Quality (hereinafter referred to as 'RQ')** - the indicator related to the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
3) The respect of citizens and the state for the institutions that govern economic and social interactions among them
    a. **Rule of Law (hereinafter referred to as 'RL')** – the indicator related to the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
    b. **Control of Corruption (hereinafter referred to as 'CC')** – the indicator related to the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.

1.1.2 The quality of government according to the Institute

The Institute distinguishes between the 'input' and 'output' side of the democratic system. The input side of the political system includes the processes that regulate the inflow of political ideas and the access to political power (for example, the electoral system, political parties, and rules for the formation of opinion) based on the principle of political equality. The output side is represented by a bureaucratic apparatus whose activity and exercise of public authority is determined by the principle of impartiality. The quality of government is defined by the Institute in terms of the fulfilment of the principle of impartiality in the exercise of public authority (Rothstein, 2015: 27-28).

This principle implies that when implementing laws and policies, government officials are not allowed to take into consideration anything about the citizen, or the case at hand, which is not beforehand stipulated in the policy or law. This principle prohibits special treatment or discrimination based on origin, political beliefs, gender, sexual orientation, religion, or

economic position. Bribery, clientelism, and nepotism will also be considered illegitimate. (Rothstein, 2015: 27-28).

Through the principle of impartiality, only the procedural aspects of governance can be assessed, not the content of the government policy itself. Thus, the procedural definition of the quality of government allows the state to implement an otherwise completely unacceptable government policy with a high quality of government (Rothstein, 2011: 12-17).

However, the benefits of assessing the quality of government through the principle of impartiality are as follows:

- It is not reduced on the issue of corruption, but it also covers the issues of clientelism, nepotism and discrimination.
- It can deal with the fact that some non-democratic countries (e.g. Singapore) have a high quality of government.
- It allows examining the relationship between the quality of government and democracy and solves the paradox of the fact that the establishment of democracy does not necessarily lead to an improvement in the quality of government.
- It allows examining the relationship between the quality of government and the efficiency of the public sector. (Rothstein, 2015: 27-30)

1.2 The possibilities of the government quality quantification

The theoretical approaches to the quality of government are followed by specific quantification methods.

1.2.1 Worldwide Governance Indicators

Since 1996 the World Bank (Kaufmann, Kraay, Mastruzzi, 2010a) has been drawing up following indicators 1) Voice and Accountability (**VA**), 2) Political Stability and Absence of Violence/Terrorism (**PV**), 3) Government Effectiveness (**GE**), 4) Regulatory Quality (**RQ**), 5) Rule of Law (**RL**), 6) Control of Corruption (**CC**), together referred to as **Worldwide Governance Indicators (hereinafter referred to as 'WGI')**.

These indicators take values in the range from <-2.5 to 2.5>; respectively in percentages from 0% to 100% (i.e. from the lowest to the highest).

1.2.2 European Quality of Government Index

This is an indicator created by the Institute in 2010 as part of a research project focused on regional development in EU. The Institute seeks to analyse differences in the quality of governance at both national and regional levels among the countries of the European Union (Charron, 2018).

The Institute quantifies the quality of government using the indicators as follows 1) Corruption, 2) Effectiveness of bureaucracy, 3) Rule of law and observance of the principle of impartiality, and 4) The strength of democracy and democratic institutions. As the most suitable source of data to quantify the quality of government at national level, the Institute chose the above-mentioned World Bank research. It contains data on all 4 quality of government indicators (which, in principle, correspond to CC, GE, RL, VA). These can then be aggregated into indicator, with the same weight of the individual indicators. Therefore, the arithmetic average of the CC, GE, RL, VA compiled by the World Bank can be used to obtain a composite quality of government indicator (referred to as the 'Combined QoG score') The standardized values are referred by the Institute to as the European Quality of Government Index (also referred to as 'EQI') (Charron, 2008). Regional EQI estimates are compiled by the Institute based on an extensive questionnaire survey.

The authors of the article in the following analysis are based on the national level of the EQI, as it can be calculated from the World Bank databank for nearly any year and basically also for any country. This is the reason why the authors of the article omit the adjective 'European' in the text and speak only about the Quality Index (also referred to as QI).

2 Methods

As a research method, authors have chosen a correlation analysis. The correlation analysis allows determining the force of interdependence between variables. Depending on the assumption of the data normality, the Pearson or Spearman coefficient of correlation are most often chosen. While the Pearson correlation coefficient describes the linear relation of the selected variables, the Spearman correlation coefficient describes how the relation of the selected variables corresponds to the monotone function, which may be nonlinear (Budíková, 2006: 124-126). Thus, the correlation analysis makes it possible to determine whether there is dependence between the quality of government of a given country, the standard of living, the level of public spending or the level of education or social differences in society and how that dependence is strong.

For processing the analyses, the author of the article uses program STATISTICA Cz, version 12. Hypotheses are tested at significance level of 5% (i.e. 0.05).

3 Problem solving

3.1 Selected indicators

To analyse the relationship between the quality of government and the standard of living, the level of public spending or the level of education or social differences in society, use the authors of the article indicators as follows:

- **Quality index** (also referred to as 'QI') calculated according to the Institute's methodology as the arithmetic average of the CC, GE, RL and VA indicators periodically compiled by the World Bank. The index takes values in the range from <-2.5 to 2.5>, the higher the QI value is, the higher is the quality of government in the given country.
- **GDP per capita** (also referred to as 'GDP/capita') the nominal gross domestic product in current US dollars divided by the median population of that country. The indicator is compiled by the World Bank.
- **Tertiary education** is an indicator of the tertiary (i.e. university) level of education of adults aged 25-64. It is reported in % and compiled by the OECD.
- **GINI index** measures the extent to which the distribution of income (or, in some cases, consumption of expenditure) between individuals or households within the economy deviates from a perfectly equal distribution. The indicator is given in %, with 0% representing perfect equality and 100% perfect inequality. It is an indicator compiled by the World Bank.
- **Public Expenditure/GDP -** public expenditure include the cash payment for the provision of goods and services by the government, including compensation to employees (such as wages and salaries), interest and subsidies, grants, social benefits and other expenses such as rent and dividends. The indicator is given in % and is also compiled by the World Bank.

3.2 Hypothesis tested in the article

H_1: There is a relationship between the quality of the government and the standard of living (GDP per capita).

H_2: There is a relationship between the quality of the government and the level of public spending (Public Expenditure/GDP).

H_3: There is a relationship between the quality of the government and the level of education (Tertiary education).

H_4: There is a relationship between the quality of the government and the social differences in society (GINI Index).

3.3 Data sources

For carrying out the analysis the author of the article chose years from 2010 to 2015. This broadly defined timeframe allows them to obtain a sufficient number of input data.

As the most problematic indicator has shown the GINI index, which is no longer available for the year 2016 and the following. The range of countries has been influenced mainly by the selected indicators. Although the original intent was to carry out global analysis, the available data eliminated the range in just 42 countries.

Basic descriptive statistics of the data used in the analysis can be seen in the following Tab. 1:

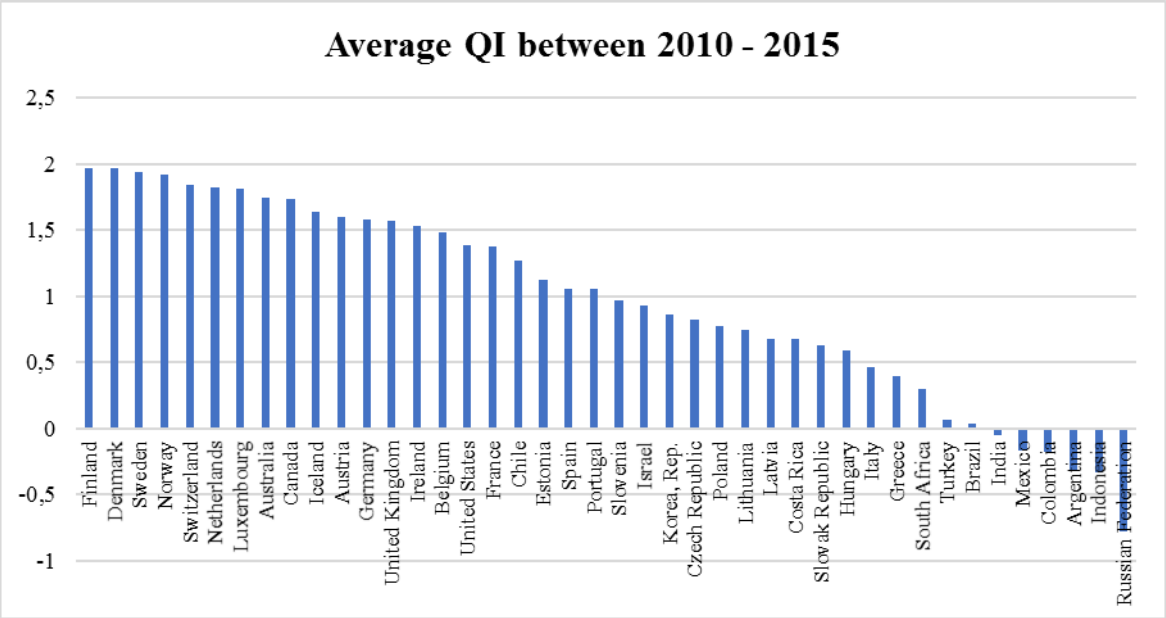
Tab. 1: Descriptive statistics of QI and selected indicators

Indicator	Descriptive statistics			
	Average	**Minimum**	**Maximum**	**St. dev.**
QI	1.03	-0.815	2.0	0.72
Tertiary education	30.08	8.288	55.6	10.32
GINI Index	34.16	24.900	63.4	7.42
GDP per capita	35150.54	1461.672	119225.4	25465.65
Public expences/GDP	34.51	2.167	62.3	11.83

Source: Processed by the authors according to the OECD 2018, World Bank 2018a

The average quality of government in selected countries between 2010 - 2015 is shown in the following Fig. 1:

Fig. 1: The graph *showing* the average quality of government in 2010- 2015



Source: Processed by the authors according to the World Bank 2018a

3.4 Results of correlation analysis

Since the selected indicators do not meet the assumption of normality, it is necessary to use the Spearman's correlation coefficient to test the relationship between the quality of government, Tertiary education, GINI Index, GDP per capita and Public Expenditure/GDP. The results of the correlation analysis are shown in the following Tab. 2:

Tab. 2: The results of correlation analysis of QI, Tertiary education, GINI Index, GDP per capita and Public Expenditure/GDP

Variable	**Spearman's correlation Marked correlations are significant at the level p < 0.05000**				
	QI	Tertiary education	GINI Index	GDP per capita	Public expenditure /GDP
QI	1.000000				
Tertiary education	0.750689	1.000000			
GINI Index	-0.592280	-0.348519	1.000000		
GDP per capita	0.883937	0.710454	-0.576322	1.000000	
Public expenditure/GDP	0.083282	-0.035868	-0.280270	0.230582	1.000000

H_0: r = 0, p-value ≥ α (0.05)

Source: Processed by the authors

The red marked numbers in the table indicate the results for which the zero hypothesis on the independence of indicators has to be rejected with respect to the p-value < 0.05. In other words, they indicate statistically significant results that can be assumed to exist a correlation among indicators. On the other side, the results for which the p-value ≥ 0.05, the null hypothesis of independence is not reversed. (Budíková, 2006: 73-80).

Depending on size of r, correlation strength and direction of impact can be determined. Positive r-value means the positive relationship of indicators (i.e. direct sequence

dependence), while the negative r-value represents the negative relation (i.e. the indirect sequence dependence of the variables). The higher the r-value approaches -1 (or 1), the stronger is the indirect (or direct) sequence dependence of the indicators. The closer to 0 the r-value is, the poorer is the dependence of the indicators (Budíková, 2006: 73-80).

From the results of the correlation analysis of the selected dataset it can be concluded that there exists positive relationship between QI and Tertiary education (r = 0.750689); QI and GDP per capita (r = 0.883937). Therefore, if the country has high quality of governance, a high level of education and a high GDP per capita can be expected. Also, according to r-value, strong dependence between these indicators can be expected.

In the case of QI and GINI Index (r = -0.592280), the negative relationship can be expected from the correlation analysis. Therefore, if the country is characterized by high quality of government, a more equitable distribution of income in the society can be expected (and therefore lower GINI Index). From r-value it can be concluded that there is a weaker dependence between these two indicators than between QI and Tertiary education, respectively QI and GDP pes capita.

Conversely, in the case of QI and Public Expenditure/GDP the correlation analysis does not indicate the existence of a relationship. The indicator of Public expenditure/GDP appears to be only slightly correlated with the GINI Index (r = -0.280270) and GDP per capita (r = 0.230582).

According to the results of the correlation analysis, it is also clear that the indicators Tertiary education, GINI Index, GDP per capita and Public Expenditure/GDP can be considered to be mutually correlated except for the indicators Tertiary education and Public Expenditure/GDP. The highest correlation rates are between the GD per capita and Tertiary education (r = 0.710454) and GDP per capita and GINI Index (r = -0.576322). However, this is a predictable result as **it can be expected that the standard of living in a given country influences both the level of education and the distribution of income in society**.

3.5 Conclusions of the analysis

Based on the results of the correlation analysis following conclusions can be made:

- H_1: There is a relationship between the quality of the government and the standard of living (GDP per capita), **can be confirmed within the given dataset**.
- H_2: There is a relationship between the quality of the government and the level of public spending (Public Expenditure/GDP), **cannot be confirmed within the given dataset**.
- H_3: There is a relationship between the quality of the government and the level of education (Tertiary education), **can be confirmed within the given dataset**.
- H_4: There is a relationship between the quality of the government and the social differences in society (GINI Index), **can be confirmed within the given dataset**.

4 Discussion

Conclusions of the correlation analysis confirmed the existence of dependence between the quality of government and the standard of living, the level of education and the distribution of income in society. These results correspond to the current analysis of the Institute and the Swedish Institute for European Policy Studies (Charron, Lapuente, Rothstein, 2018), according to which there is a dependency between quality of governance and competitiveness and economic performance, as well as unemployment, social justice and many other areas.

On the basis of the conclusions of the correlation analysis, the assumption of dependence between the quality of government and the amount of public expenditure has to be rejected. It can be assumed that this outcome is influenced by the fact that public expenditures are spent on a whole range of areas, which are not always related to the quality of government. It can be assumed that in the decisive period 2010-2015 the high amount of public spending could be affected by the global financial crisis. In this case, countries such as Greece were ranked in terms of public expenditure at the top of the ranking, but the quality of their government was below average.

Conclusion

Within the selected dataset of 42 countries between 2010 - 2015, the authors of the thesis confirmed the existence of a dependency of quality of government and standard of living, level of education and distribution of income in society. Based on this analysis, in conjunction with other expert studies, it can be concluded that the quality of government is one of the key factors influencing life in a given country, as it was already predicted in 2005 by Kofi Annan.

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MODEL OF ECONOMIC INFORMATION PUBLISHING PROCESS IN CONDITIONS OF MUNICIPALITIES IN THE SLOVAK REPUBLIC

Eva Mihaliková, Darina Koreňová

Abstract: *Digital technologies and their implementation into all organizations of public administration support economic development and a better quality of life. Making local self-government activities / work more efficient through modern technologies is the basis of smart cities. The main objective of public organizations is to use attractive and technologically modern way to raise awareness, to stimulate the use of electronic services and citizens' involvement in the affairs of self-government. This contribution focuses on the publishing process of economic information by municipalities. The modelling of processes highlights the basic legislative regulation, which implies an obligation to publish information to the public (on the websites of municipalities or in the relevant registers). Public awareness is the basis element for the formation of open, modern and transparent self-government, which increases citizens' satisfaction. We must pay attention to it.*

Keywords: *municipalities, public, information, publication, model.*

JEL Classification*: O31, K49, P43.*

Introduction

Entire society has been constantly changing and developing, influenced by technical progress and innovations, which requires modernization of particular areas including public administration. In current information times, informatization process on all public administration levels represents an important part of modernization. The informatization process is aimed at improving information provision to the public and transparency of public services provided through application of information - communication technology. Publishing the information shall contribute to better information provision to the citizens on planned and implemented activities of particular public administration bodies and on administrative procedures of carrying out citizens´ requests on one hand, and mobilize the citizens to increased interest in solving their issues in a more effective and faster way, i.e. via e-mails, and in public matters on the other hand. This article is dedicated to the process of carrying out selected economic information on the territorial self-government level.

1 Subject matter formulation

Based on the Act of Free Information Access, municipality represents an obliged subject with legal duty to publish certain information. This duty was imposed on the municipalities by further regulations, namely the Municipal Establishment Act, Municipal Property Act, Administration Order and a few other Acts. Requirements of these acts were reflected in the rules determining the following information subject to obligatory publishing by the municipalities [6]:

- Information on municipal self government;
- Information on municipality economic performance and property;
- Information published and made available pursuant to special regulations;
- Information on legal entities founded and established by the municipality, and on companies with business interest of the municipality.

However, the rules indicate much higher extent of published information in sake of ensuring the highest transparency and as many as possible citizens informed, since they are the main source of municipality tax income and have right to control its activity and economic performance.

In the presented article, we drawn the attention to partial information on the municipality property and economic performance, especially information on the budget, budget fulfillment reports, financial statements, annual final accounts, and contracts prepared pursuant to special regulation, order of the goods, services and work, and related invoices pursuant to special regulation.

Along with identification of mandatorily published information, the above stated acts stipulate various forms of publishing. In general, self-government is obliged to publish information in the way usual in the given location, which can be considered as [1]:

- notification placed on the official municipality billboard;
- notification published on the municipality website, if any;
- notification via municipal radio broadcasting (if any, and if usually used for broadcasting the notifications intended for citizens);
- notification published in municipal papers (if published, and if usually used for delivering the notifications intended for citizens); and
- notification broadcast in local TV channel (if any, and if usually used for delivering the notifications intended for citizens).

Active approach of the municipality to information publishing via Internet represents the best conditions for information provision to the public and to public control. Such method of information presentation is supported also by the mentioned rules stipulating that information that should be obligatorily published by the municipality also in other manner, shall be published also on the municipality website operated by them, taking care to ensure up to date, complete and properly structured information presented [6]. It is mainly information that helps a citizen to orientate himself in obtaining information on the local self-government activities and eventual communication with it. Thus, information should be actively published by the municipality.

If the municipality doesn´t operate a website or doesn´t publish information thereon that should be published, citizens are entitled to such information and can require it from the municipality pursuant to the Act of Free Information Access.

2 Methods

The article is aimed at creating a global model of information publishing control in the Slovak Republic conditions, focusing on selected area of information related to municipal property and economic performance.

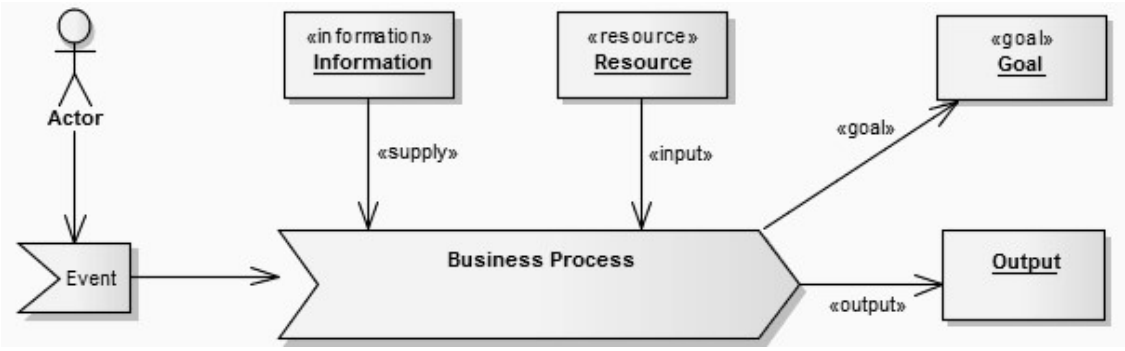
Models (be it global or detail) represent a key tool for solution of a real object complicated nature. They are used for application of effective management in both private and public sector, for implementation of new SW solutions, optimizing of organizational processes, etc. Territorial self-government in Slovakia, represented by its fundamental unit – municipality – often struggle many competences assigned. Modeling of its original or transferred competences (rights and obligations) allows making transparent the extent of assigned, required or desirable by the municipality activities.

Process modeling has been chosen as a central method in this article. Abstraction represents the main modeling denominator. Process model is aimed at distinguishing major process elements from those trivial.

In particular, global process model purposely monitors the system complexity but not in the form of details. Considering the time, global model is perceived as timely universal, statically focused on the existence of elements and their interactions (offering view son processes as on objects, system of processes and their mutual relations). [8]

The Eriksson - Penker notation has been used to create a process system global model, developed as a specialization of class diagram from UML language. H. E. Eriksson and M. Penker [5] are the notation authors. Accordingly, we determine four basic elements of the global model: processes, goals, sources, and rules. Fig. 1 shows an example of a simple diagram created in this notation.

Fig. 1: An example of The Eriksson - Penker diagram



Source: [9]

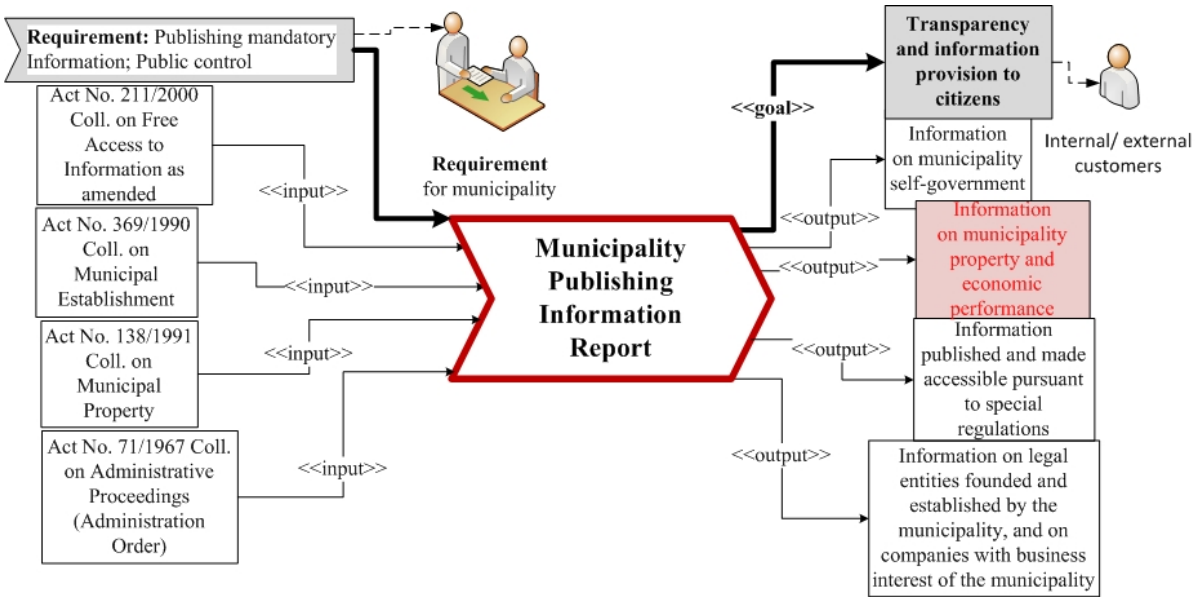
Since every process is primarily focused on a customer (and concurrently it is its main evaluation criterion), the following customers can be identified within the created global model:

- Internal customers – employees of municipal office, municipal bodies (Mayor/ municipal representatives),
- External customers – municipal citizens and inhabitants, public administration bodies (state administration and self-government), organizations and public administration institutions, and private sector subjects (companies, banks, etc.).

3 Problem analysis

At first, we shall focus on the information obligatorily published by municipalities through created Global Model of Information Publishing Report by Municipalities in the Slovak Conditions, as illustrated on Fig. 2. This model precedes the targeted model as for contents. It illustrates the areas of mandatory information publishing by municipality, namely information on municipal self government, municipal economic performance and property, legal entities founded and established by the municipality, companies with business interest of the municipality, and information published and made accessible pursuant to special regulations.

Fig. 2: Global model of Information Publishing Report by Municipalities in the Slovak Conditions



Source: Self-elaboration

The article is furthermore focused on one of these areas - Information on municipality property and economic performance – where we focused mainly on economic information presentation, namely:

- publishing of contracts, orders and invoices;
- publishing of draft budgets and final accounts;
- publishing of financial statements, annual reports and auditor´s reports.

3.1 Publishing of contracts, orders and invoices

Pursuant to Act No. 40/1964 Coll. (Civil Code) as amended, and Act No. 211/ 2000 Coll. on Free Access to Information as amended, all municipalities, towns, and self-governing regions and organizations founded by them are obliged to publish contracts, invoices and orders on their websites, provided that such contracts, invoices and orders is obligatory that are associated with public funds, property owned by the state, municipality, higher territorial whole or legal entities founded upon law. If they don´t operate their own website, their contracts can be published for free in the Commercial Journal or on portals intended for this purpose, e.g.:

- general portal for publishing contracts, invoices and orders: Register of contracts, invoices and orders (http://www.rzof.sk/);
- portal serving for publishing of contracts, invoices and orders of territorial self-governments and other obliged subjects: eGovContracts (http://zmluvy.egov.sk/);
- portal serving for publishing of documents – contracts, invoices and orders, public procurement, directives, resolutions, Minutes: Register of Customer Relations (http://www.rov.sk/);
- portal: Publishing of contracts, invoices and orders (https://www.zverejni.info/);
- portal for publishing of contracts, invoices and orders (http://zverejnene.sk/);
- portal for publishing of contracts, invoices and orders (http://zverejnovanie.sk/);
- portal for publishing of due documents (http://www.nasezmluvy.sk/);

- central register of contracts (www.crz.gov.sk);
- portal Association of Slovak Towns and Municipalities (http://www.zmos.sk/zverejnovanie-zmluv.phtml?id5=19140).

Obligation to publish contracts related to public funds became effective on 1st January, 2011. We should state that contracts of work or service contracts must be concluded in compliance with Act No. 343/2015 Coll. on Public Procurement as amended, and recorded in the Register of Contracts in Effect.

Municipality as a subject obliged shall publish orders of the goods and services on its website within 10 days from the ordering date. This shall not apply to orders related to already published contract. Invoices shall be published on the obliged subject´s website within 10 days from delivery to the subject obliged but at the latest within 30 days from invoice settlement. Publishing of invoices and orders apply only to subjects obliged with own Internet website [19].

3.2 Publishing of budgets and final accounts

Act No. 583/2004 Coll. on Territorial Self-Government Budgetary Rules as amended states that the municipality budget is a fundamental tool of financial performance in respective fiscal year that funding of municipality tasks and functions depends on. Draft budget is subject to approval by the municipal representatives and before it shall be published for at least 15 days in the manner usual at particular municipality (§ 9 clause 2 Act No. 369/1990 Coll. on Municipal Establishment). Preparing the municipality budget, the Act of Municipal Establishment doesn´t stipulate the budget publishing on the municipality website but only doing it in the manner usual at particular municipality. Since towns and cities are obliged to develop their websites (§ 6 clause 1 Act No. 211/2000 Coll.), published information on website is also considered publishing in the manner usual at particular municipality. The Act of Municipal Establishment doesn´t explicitly stipulate publishing of the approved budget wording as stated in case of generally mandatory regulations that must be available for everybody at the Municipal Office that issued them. Nor is such obligation ordered for self governments by the Act of Territorial Self-Government Budgetary Rules. Nevertheless, self governments usually publish the approved full or partial budget wording at least on the websites operated by them [2].

Similar principles to those applicable to budgets apply also to the municipality final accounts publishing. Draft final account of municipality shall be approved by municipal representatives; the draft is submitted for discussion at the Municipal Office by the Mayor. Final accounts of the municipality shall be prepared according to the statement of finances. Based on the Act of Territorial Self-Government Budgetary Rules, Final Accounts shall contain seven basic sections along with introduction and enclosures, namely: information on fulfillment of cost and revenues, assets and liabilities, overview of debt status and prognosis, overview of provided guarantees, fulfillment of budget, economic performance of contributory organizations and information of cost and revenues related to business activities. Before the approval of the draft municipality Final Accounts at the Municipal Office, the municipality comptroller must prepare the expert standpoint thereto (§ 18f clause 1 item c) Act No. 369/1990 Coll.). Draft budget is subject to approval by the municipal representatives and before it shall be published for at least 15 days in the manner usual at particular municipality (§ 9 clause 2 Act No. 369/1990 Coll.) so as the citizens can make comments thereto [3].

3.3 Publishing of financial statement, Annual Reports and Auditor´s Report

Financial statement represents an accounting record where assets, liabilities, equity, cost, revenues, resulting profit/ loss and other assets and liabilities are documented in the form of records whose form and contents are determined by the Slovak Ministry of Treasury.

Financial statement is considered as prepared after attaching signatures to the general requirements of the financial statement and its particular enclosures.

Every financial statement shall be entered in the Register of Financial Statements, being an IS of public administration [7]. Register administrator shall enter, publish and make available every delivered document as stored by the accounting unit, at the latest within 5 business days from the date of delivery to the Register in its public or non-public section. Published documents to be entered in the Register and concurrently in the Company Register Collection of Deeds shall be submitted to the Register Collection of Deeds by the Register administrator within 30 calendar days from the day of publishing in the Register, along with information on the register entry date. The Slovak Ministry of Justice shall ensure storage of the deeds in the Collection of Deeds pursuant to § 9 clause 7 Act No. 530/2003 Coll. on the Company Register without unnecessary delay [18].

Accordingly, obligation to enter the financial statement in the Company Register Collection of Deeds by accounting units has not been cancelled since 2014. Such obligation is fulfilled upon storage of the financial statement in the Register of Financial Statements that should ensure its storage in the Company Register Collection of Deeds.

Municipalities shall have their financial statements audited by auditor. If the financial statement becomes subject to audit, the auditor shall examine the accounting unit in order to express their opinion on the financial statement and financial standing of the accounting unit in the Auditor´s Report.

Accounting units that are obliged to have their financial statement examined and verified by auditor shall prepare also the Annual Report [10]. Annual Report shall contain financial statement for respective fiscal period and Auditor´s Report on the financial statement, except otherwise stipulated in special regulation, and further information (e.g. development of the accounting unit, research and development cost, proposed distribution of profit or coverage of loss, etc.). Similar to the financial statement, the Auditor´s Report and Annual Report shall be stored in the Register of Financial Statements.

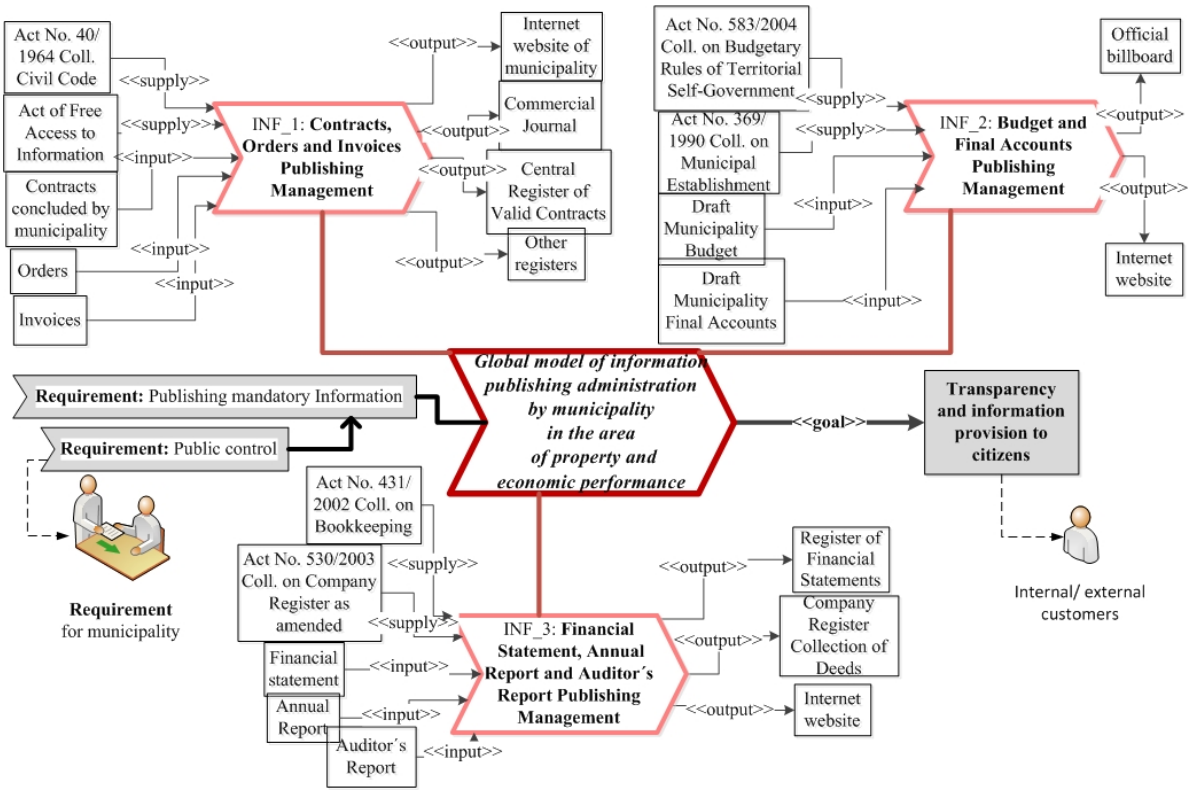
3.4 Model of economic information publishing by municipality

In the following section, publishing of the above stated documents is expressed through a global model. The global model of information publishing by municipality in conditions of the Slovak Republic, focused on the area of selected economic information on the municipality economic performance and property, is illustrated on the Fig. 3. It consists of three basic sub-processes:

- INF_1 Contracts, Orders and Invoices Publishing Management;
- INF_2 Budget and Final Accounts Publishing Management;
- INF_3 Financial Statement, Annual Report and Auditor´s Report Publishing Management.

Each of these sub-processes has inputs and outputs allocated. Valid legal regulation applicable to particular area represents the most frequent sub-process support. Output refers to acceptable form of information publishing (e.g. official billboard, Internet website, and respective registers). Requirement of due information publishing and subsequent public control represents a summary requirement applicable to all sub-processes. This model is aimed at ensuring transparency and information awareness by the citizens as a key intention of public administration approximation to the citizens (as a public power source). A citizen is concurrently the main process customer within municipality. The stated requirement and goal are identical to both presented models.

Fig. 3: Global model of information publishing administration by municipality in the area of property and economic performance



Source: Self-elaboration

4 Discussion

Value of information has been currently continuously increasing with electronic acquisition of information becoming ever more important. Public administration considers the information one of the most significant tools, the basis of correct decisions, better performance and satisfaction of the public. Public administration sector is obliged to publish selected information pursuant to Act No. 211/2000 Coll. on Free Access to Information, the Slovak Constitution and other legal regulations.

Effective from 1st January, 2011, the Act requires publishing of contracts, invoices and orders on the municipality Internet website or in respective register. Such requirement has not been satisfactorily ensured in a few municipalities, as indicated by the inspection performed by the National Control Authority during 2012 and 2013. The inspection revealed that a fifth of the municipalities didn´t fulfill this legal duty and another tenth of them published contracts, invoices and orders irregularly or with delay. As stated by Vozárová [11] it is a serious failure since the Act states that a contract shall become effective after its publishing. The reasons of stated deficiencies often result from financial or human resources, as well as lack of professional knowledge. Therefore, the Slovak Ministry of Treasury prepared and issued the guideline in cooperation with the Slovak Ministry of Justice and the Slovak Governmental Office, dealing with various aspects of conversion and publishing of electronic contracts, orders and invoices on Internet. The document is aimed especially at ensuring consistence of the stated Act requirements and requirements of the public administration IS standards, providing instructions for proper creation of electronic documents.

Budget and Final Accounts represent documents that inform the public on the planned and implemented activities and their financial demands. Pursuant to Act on Municipality Establishment, municipalities must publish draft documents for the public before their

approval in the way usual in the given location. Currently, publishing on the municipality website has been primarily considered such usual way in the given location.

Publishing of financial statement related information represents the last reviewed subject matter. Data from financial statements, Annual Report and Auditor´s Report represent fundamental documents that must be entered in the Register of Financial Statements pursuant to the Bookkeeping Act, and represent a part of the Company Register Collection of Deeds. These documents don´t have to be published by municipalities on their websites as obligatory information for the public, except if they are associated with legal entities established or founded by the municipality and those with the municipality business interest [6].

Conclusion

Information provision to the public represents a fundamental condition of transparent and open public administration. In the world of digital technologies, Internet has been considered the most effective mean of information provision. Information spread much faster in the Internet environment, it is accessible at any time from any place; thus this method has become the basis for provision of all information that subjects obliged are to publish pursuant to the Act on Free Information Access. Our article reviewed and determined a part of obligatorily published information on property and financial performance by municipalities through a model illustration. The analysis indicates the legal duty to publish contracts, invoices and orders, as well as draft budgets and Final Accounts of municipalities on their websites, evtl. in respective electronic registers. Such information is of primary importance in the terms of fundamental economic information intended for the public. Financial statements, Annual Reports and Auditor´s Reports are mandatorily published in the Registers of Financial Statements but the municipalities only rarely publish them in full extent on their Internet websites.

The aim of a more efficient local self-government is to create an economical, transparent, flexible and competitive self-government. Professional and highly qualified executives, implementation of managerial methods, systematic education and digitalization of administration processes are the prerequisites for reaching this goal [4].

Finally, we can state that implementation of information – communication technology in all public administration processes significantly contributes to increased information awareness of the citizens. This shall ensure higher transparency and more effective public administration performance control through engagement of the citizens in the *res publica* control. The stated method of information provision represents one of many terms of smart towns´ development.

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[14] Act No. 431/2002 Coll. on Bookkeeping as amended.

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THE TECHNICAL EFFICIENCY OF SECONDARY SCHOOLS IN THE PARDUBICE REGION

Romana Provazníková, Denisa Chlebounová

Abstract: *This contribution deals with capacity of secondary schools in the context of technical efficiency. The Czech education suffers from insufficient use of secondary but also primary school capacities. The aim of this paper is to evaluate technical efficiency of vocational secondary schools in the Pardubice region with the focus on their capacities, and that in relation to the actual number of pupils for the school year of 2016/2017. Data Envelopment Analysis (DEA) was used to meet this goal. Two inputs were selected – the number of classes and the expenditure on teacher salaries, and one output – actual number of pupils. The results of this analysis show that five vocational secondary schools from the 20 examined vocational secondary schools use effectively their capacities. The optimal utilization of capacities calculated as quotient of actual number of pupils and optimal number of pupils expresses the fact that the examined schools use their capacities on average only at 60 % - only three schools use their capacities above 80 %. This situation is caused by a long-term decline in birth rates when the number of secondary school pupils is decreasing.*

Keywords: *data envelopment analysis, secondary schools, capacity, technical efficiency, number of pupils.*

JEL Classification: *I210, H750.*

Introduction

Education is widely recognized as one of the key drivers of economic and social development. Attainment of education is necessary for individuals to prepare for their professional careers, but it also has a positive impact on the society [2]. Public expenditure is crucial to assure the access to education for all citizens. Therefore, providing a quality education is one of the most important public services. However, it is also necessary to spend public resources efficiently from economic point of view.

In recent times, the Czech Republic faces the problem of the lack of pupils of secondary schools in terms of school capacity. There is an excess supply (capacity of schools) over demand (number of pupils). This situation reduces the efficient use of public resources. Also because of the current way of financing secondary schools (according to the number of pupils), schools often do not receive enough funding for their activities.

The relevant literature distinguishes between two types of efficiency [7], [8], [16]: efficiency in resource allocation, that is, the capacity of decision-making units (DMUs) to adequately select input amounts in light of their relative prices, and technical efficiency, which is DMUs' capacity to maximize output given a certain level of inputs. This paper is concerned with the latter. Charnes et al. [6] defined technical efficiency as an ability of production units to maximize output at given level of inputs; or to minimize inputs by reaching the required level of outputs.

Technical efficiency is an object of DEA – Data Envelopment Analysis. The use of the DEA method while evaluating technical efficiency of schools is numerous and individual cases show that the DEA method can be used to evaluate both internal and external issues at all levels of schools or education systems. Tóth [19] determined the relationship between the efficiency of European higher education systems and the degree of state support as well as the

family's socio-economic background. Bradley, Johnes and Millington [5] evaluated the technical efficiency of all secondary schools in England, and Alexander, et al., [1] conducted a two-stage (DEA and regression) analysis of the efficiency of New Zealand secondary schools. Hussain et al. [10] also used the DEA model and the Malmquist index to evaluate efficiency and productivity of public schools in Pakistan for the period of years 1993 – 2012. Vrabková [20] evaluated technical efficiency of all 55 basic schools of the city of Ostrava with the focus on their capacities. We build on her paper and find this efficiency for secondary schools established by the Pardubice Region.

The aim of our paper is to evaluate technical efficiency of vocational secondary schools in the Pardubice region with the focus on their capacities and that in relation to the actual number of pupils for the school year of 2016/2017. Then, based on the results, formulate recommendations for improving chosen indicators. We chose vocational secondary schools for analysis because there is a perspicuous problem of low number of pupils. In the whole Czech Republic there is a drop in demand for vocational secondary schools, while the demand for grammar schools is rising.

1 Statement of a problem

Capacity utilization of secondary schools is determined by the number of applicants for specific fields, by the regional placement of schools, the image of schools or their results. However, the most important factor is the demographic trend, when the decreasing birth rate reduces the number of secondary school students.

In the Czech Republic, there has been a significant decline in birth rates since the 1990s [11]. Of course, this development is reflected in primary and secondary education. As a result of the decreasing number of pupils, the network of basic and secondary schools in the whole Czech Republic was optimized. Moreover, after 1989 there were many new educational facilities. The creation of new entities has not been regulated and their number has increased significantly. It was necessary to reduce unused capacities. The first efforts of the government to optimize the network of secondary schools occurred in 1995 - 2000, when several secondary schools were merged and new legal entities were created. Optimization efforts continued until the year 2003. The largest wave of merging came in 2011, when utilization of capacities of secondary schools was only about 60 %. This wave of merging covered almost all regions [14].

But this merging has met with disagreement among citizens. Berka adds that *'there is a reluctance of the representatives of regional self-government to reduce the system of secondary education, because it is necessary to confront the resistance of the stakeholders, which results in the outflow of voter's favour due to the media's response'* [3]. Despite protests, the Pardubice Region (but also other regions) managed to merge some of the little-used secondary schools (e. g. Střední odborná škola and Střední odborné učiliště Pardubice created Střední škola potravinářství and služeb Pardubice, or Střední škola zahradnická Litomyšl and Střední odborná škola technická created Střední škola zahradnická and technická Litomyšl). At present, the Council of the Hradec Králové Region has approved the merger of 21 secondary schools in the region. The number of schools should be reduced to 10 schools. Most of them are vocational schools [3]. The merging is also considered in the Vysočina Region, or in Prague Region.

2 Methods

This study covers 20 vocational secondary schools in the Pardubice region. We used all these schools with the exclusion of vocational secondary schools that are part of higher vocational schools. We also excluded grammar schools because of different characteristics

compared to vocational secondary schools. Vocational secondary schools have significantly higher costs due to the need for more expensive equipment for practical training, or a higher number of teachers divided into practical and theoretical learning. The inclusion of grammar schools would then distort the results of the analysis. The data about schools was obtained from the internal materials of the Statutory City of Pardubice.

To estimate efficiency scores, we used data envelopment analysis (DEA). This is a non-parametric technique that considers each school as a decision-making unit (DMU) using inputs to produce outputs with the aim to compute efficiency scores. In a DEA model, technical efficiency is defined as the relative ability of each DMU (school) in producing outputs, and the term relative means that each organization is compared with any other homogeneous unit. The choice of a set of weights that combine several outputs and several inputs is the core of DEA analysis [6].

There are two different specifications of a DEA model: input-oriented and output-oriented. In the input-oriented model, DMUs minimize inputs while maintaining the same level of outputs. Conversely, in output-oriented models, DMUs are maximizing their level of outputs while keeping inputs constant. Basically, the difference is the ability that a DMU has to control input or output quantity. If it can control input, then an input-oriented version is preferable. In this paper, input-oriented model is employed [18]. Appearance of the efficient frontier depends on the nature of returns to scale. Returns to scale can be constant or variable. It should be taken into consideration that the integration of resources is not always the same in the education process. If they would be utilized at the same level, then we should calculate with constant Return to Scale (CRS), accordingly, variable return to scale (VRS) is preferable. The assumption of VRS provides a more realistic expression of economic reality and factual relations, events and activities [17]. The input-oriented VRS indices of DEA can be obtained by solving the following linear programming equations [12]:

maximize $$z = \sum_{i=1}^{r} u_i y_{iq} + \mu$$

subject to $$\sum_{i=1}^{r} u_i y_{ik} + \mu \leq \sum_{j=1}^{m} v_j x_{jk}, \quad k = 1,2,\dots,n \tag{1}$$

$$\sum_{j=1}^{m} v_j x_{jq} = 1$$

$$u_i \geq 0, \quad i = 1,2,\dots,m,$$

$$v_j \geq 0, \quad j = 1,2,\dots,r,$$

$$\mu \ free$$

where q represents the unit being evaluated, y_{iq} are the outputs of the unit q, x_{jq} are the inputs of the unit q, u_i and v_j are the weights of the individual inputs and outputs. The unit is effective (i.e lying at the efficiency boundary) when its efficiency z is equal to 1 (or 100 %). The inefficient unit has an efficiency rate of less than 1.

3 Problem solving

The following inputs and output criteria were chosen for the DEA analysis: number of classes, expenditure on teacher salaries as inputs, actual number of pupils as the output (see Tab. 2). Taking into consideration the entire sample of researched schools we can describe them as follows. Tab. 1 depicts the minimum, maximum, mean and standard deviation of each researched input and output.

Tab. 1: Statistical characteristics of inputs and outputs of the DEA model

Name	Mean	Maximum	Minimum	Standard deviation
Number of classes	16	37	6	7.8
Expenditure on teacher salaries (per pupil)	34 755	41 606	29 832	3 094
Actual number of pupils	374	968	146	198.8

Source: own processing

In our analysis we used input-based measures of efficiency. The choice of the specific DEA model depends on which of the given characteristics can be influenced and which cannot. Due to the fact that the actual number of pupils can hardly be influenced, the input-oriented model was chosen. The results of the efficiency DEA analysis are presented in Tab. 2. School with a coefficient of technical efficiency equal 1 is effective, a coefficient lower than 1 indicates that school is not effective.

Tab. 2: Order of vocational secondary schools according to their VRS efficiency (from the best to the worst)

School	Number of classes	Expenditure on teacher salaries in CZK (per pupil)	Actual number of pupils	Efficiency VRS	Ranking	Optimal utilization of capacities (in %)
SPŠCH Pardubice	37	30 916	968	1.00000	1	88.00
SPŠ potravinářství and služeb Pardubice	15	29 832	394	1.00000	1	65.67
SOU zemědělské Chvaletice	6	36 720	146	1.00000	1	52.14
SOU Svitavy	11	32 147	243	1.00000	1	41.05
SŠ obchodu, řemesel and služeb Žamberk	8	36 327	203	1.00000	1	37.59
ISŠ Moravská Třebová	15	29 932	316	0.99725	2	65.83
OA and SOŠ cestovního ruchu Choceň	21	30 136	500	0.99655	3	75.76
SOŠ and SOU Polička	12	36 807	302	0.96980	4	40.00
Průmyslová střední škola Letohrad	14	35 029	355	0.96891	5	51.45
SOU opravárenské Králíky	8	36 378	155	0.96596	6	48.44
SPŠ stavební Pardubice	9	37 512	218	0.95155	7	37.59
SPŠ Chrudim	18	33 797	449	0.94994	8	48.18
SŠ automobilní Ústí nad Orlicí	17	35 621	417	0.93364	9	62.24
SŠ zahradnická and technická Litomyšl	34	33 476	790	0.91349	10	84.85
ISŠ technická Vysoké Mýto	17	32 976	359	0.90465	11	65.27
SOU plynárenské Pardubice	13	38 200	300	0.88883	12	85.91
SOŠ and SOU technické Třemošnice	10	38 497	197	0.88609	13	65.67
Střední škola automobilní Holice	22	33 931	509	0.88561	14	70.80
SOŠ and SOU Lanškroun	18	35 259	296	0.84608	15	49.33
SŠ uměleckoprůmyslová Ústí nad Orlicí	17	41 606	371	0.83232	16	55.37

Source: own processing

DEA analysis identified five effective schools (SPŠCH Pardubice, SPŠ potravinářství and služeb Pardubice, SOU zemědělské Chvaletice, SOU Svitavy, SŠ obchodu, řemesel and

služeb Žamberk). The last column of the table contains optimal utilization of capacities. We used data from the Ministry of education youth and sports [15] about the administrative capacity of the school to calculate the optimal utilization of capacities. The administrative capacity of the school expresses the optimal (maximal possible) number of pupils of these schools in compliance with all legislative regulations. For evaluation of optimal utilization of capacities, it is desirable that actual capacities are equal or as near as possible to the optimal (determined) number of pupils of a school. The optimal utilization of capacities (OUC) can be calculated as quotient of actual (resp. real) number of pupils (A_{np}) and optimal number of pupils (O_{np}) that is the set capacity of a school, according to formula [20]:

$$OUC = \left(\frac{A_{np}}{O_{np}}\right) * 100 \tag{2}$$

You can see that the best capacity utilization reached SPŠCH Pardubice (88 %) - effective school. However, this indicator cannot be used as a parameter for DEA analysis because the funding of secondary schools takes into account the actual number of pupils. However, the low capacity of schools is definitely inefficient in terms of non-use of technical equipment.

SOU Svitavy and SŠ obchodu, řemesel and služeb Žamberk have low capacity utilization and yet they are considered effective. This is due to a lower number of classes and lower expenditure on teacher salaries (lower inputs). On the other side there is SŠ uměleckoprůmyslová Ústí nad Orlicí (the least effective). This school has the highest expenditure on teacher salaries.

One of the main benefits of the DEA analysis is that it allows for comparing the individual units and that the number of inputs and outputs can be altered in order for the less efficient units to reach the position of the most efficient unit in the researched sample. Tab. 3 shows the target values for all schools which did not reach 100 % efficiency.

Tab. 3: Improvements for the schools

School	Number of classes	Expenditure on teacher salaries in CZK (per pupil)	Actual number of pupils
SPŠCH Pardubice	37 to 37	30 916 to 30 916	968 to 968
SPŠ potravinářství a služeb Pardubice	15 to 15	29 832 to 29 832	394 to 394
SOU zemědělské Chvaletice	6 to 6	36 720 to 36 720	146 to 146
SOU Svitavy	11 to 11	32 147 to 32 147	243 to 243
SŠ obchodu, řemesel a služeb Žamberk	8 to 8	36 327 to 36 327	203 to 203
ISŠ Moravská Třebová	15 to 15	29 932 to 29 850	316 to 393
OA a SOŠ cestovního ruchu Choceň	21 to 19	30 136 to 30 032	500 to 500
SOŠ a SOU Polička	12 to 12	36 807 to 32 960	302 to 302
Průmyslová střední škola Letohrad	14 to 13	35 029 to 31 158	355 to 355
SOU opravárenské Králíky	8 to 8	36 378 to 35 140	155 to 180
SPŠ stavební Pardubice	9 to 8	37 512 to 35 695	218 to 218
SPŠ Chrudim	18 to 17	33 797 to 29 936	449 to 449
SŠ automobilní Ústí nad Orlicí	17 to 16	35 621 to 29 875	417 to 417
SŠ zahradnická a technická Litomyšl	34 to 30	33 476 to 30 580	790 to 790
ISŠ technická Vysoké Mýto	17 to 15	32 976 to 29 832	359 to 394
SOU plynárenské Pardubice	13 to 12	38 200 to 33 028	300 to 300
SOŠ a SOU technické Třemošnice	10 to 9	38 497 to 34 112	197 to 201
Střední škola automobilní Holice	22 to 19	33 931 to 30 049	509 to 509
SOŠ a SOU Lanškroun	18 to 15	35 259 to 29 832	296 to 394
SŠ uměleckoprůmyslová Ústí nad Orlicí	17 to 14	41 606 to 30 614	371 to 371

Source: own processing

4 Discussion

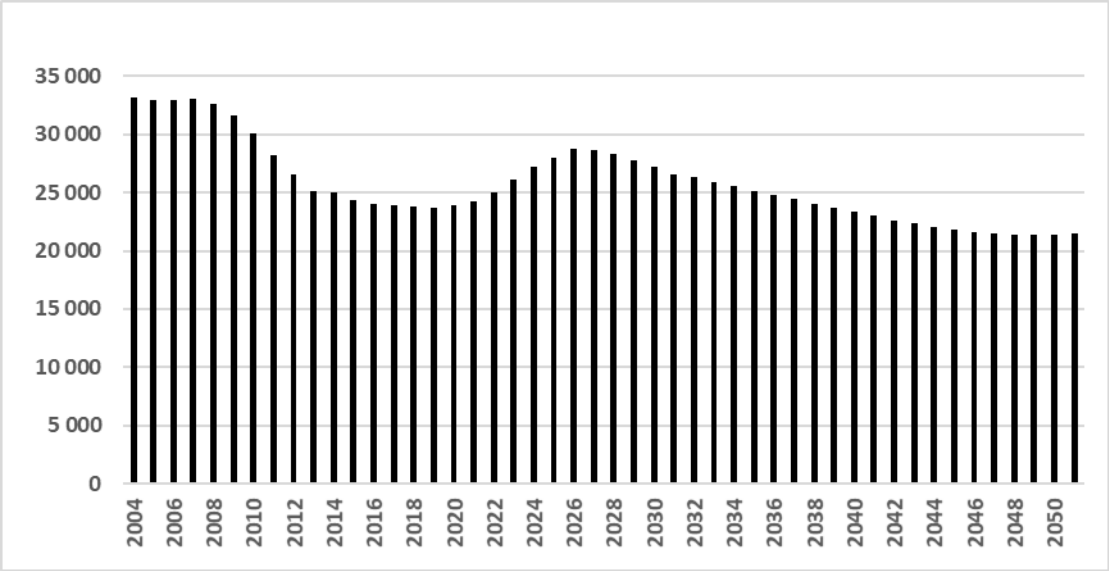
The results of the DEA analysis found that five examined secondary schools are technically efficient. Others are considered ineffective. The level of efficiency in other schools varies between 83.2 % and the above-mentioned 100 %. Analysis shows that the inefficiency of schools is due to an insufficient number of pupils. This finding was also confirmed by comparing the administrative capacity of the school with the actual number of pupils. Optimal utilization of capacities is only around 60 % on average for all the schools studied. Solution illustrated in Tab. 3, it can be considered in two planes. The first option is to reduce the number of classes (input), the second option is to increase the number of students (output). The last option is to implement these options at the same time. In all these cases, the number of pupils per class will increase.

However, when choosing input-oriented model, the question arises as to the extent to which schools can influence inputs. School legislation reduces this possibility by stipulating the conditions for schools (e.g. the minimum and maximum allowed number of pupils in the class, or teacher salary scales).

The problem of insufficient number of pupils exists not only in secondary schools, but also in basic schools. Vrabková [20] evaluated technical efficiency of all 55 basic schools of the city of Ostrava with the focus on their capacities. She found that the utilization of disposable capacities of basic schools was in the school year of 2015/2016 rather inefficient. Only three basic schools were using their capacities in an efficient way.

In connection with the proposed merging of secondary schools, it is perhaps necessary to point out that in the near future there is a slight increase in the number of people in the years 15-19 (the age group for secondary schools). At the beginning of the 2030s, however, this age group should fall again (see Fig. 1).

Fig. 1: Age composition of the population in the Pardubice Region until 2051: 15-19 years old



Source: own processing according to [9]

Nowadays, it is not necessary, nor appropriate to reduce the number of secondary schools. The question is whether the demographic development after the 2030s will evoke a real problem and the situation of secondary school capacities will become a strong motive for optimizing the network of secondary schools.

Conclusion

The aim of this paper was to evaluate technical efficiency of 20 vocational secondary schools in the Pardubice region with the focus on their capacities. We found that five examined secondary schools are technically efficient. However, insufficient number of pupils in these schools appears to be a serious problem. Optimal utilization of capacities reaches less than two-thirds. The improvement of capacities of secondary schools can be considered in two ways [20]. The first one is rationalization of capacities by merging of schools or by cancellation of a school (but this way is not popular with the public). As part of the optimization efforts, it is also necessary to take into account the location of the school. It is less problematic to merge in regional or former district towns. In smaller towns, secondary school performs not only educational, but also cultural and social functions (in these towns, however, the number of pupils is often insufficient). The other one is rationalization of capacities by administrative reduction of capacities of secondary schools (reduction of number of pupils in a class). Demographic development shows that in the next ten years we can expect a modest increase in the number of secondary school students. Capacity utilization should therefore be improved. However, then there should be a further decline in the number of secondary school students. Schools will therefore have to adapt to demographic trend again.

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REGIONAL DIFFERENTIATION OF CRIMINALITY IN THE CZECH REPUBLIC

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Abstract: *The issue of regional development is closely related to the security of the region, because a region facing security problems is not usually able to provide conditions for the required level of development and living standard of the population. This paper deals with the issue of regional differentiation of crime in the Czech Republic. The aim of the contribution is to assess the variability of crime at the regional / district level in the Czech Republic between 2008 and 2016, to identify and characterize the districts with the highest crime rates. The state and development of crime is examined using the crime index, the crime structure is based on the tactical-statistical classification of the Police of the Czech Republic. At the regional level, the highest levels of crime are reported by the capital city of Prague, Ústí nad Labem Region and Moravian-Silesian Region, the safest being on the contrary in Zlín Region, Vysočina Region and Pardubice Region. Crime is further investigated at district level, from the calculated result order, ten districts with the highest rate of crime index were selected and analysed (Ostrava-City, Brno-City, Ústí nad Labem, Chomutov, Most, Teplice, Česká Lípa, Liberec, Kolín and Karviná). These districts are concentrated mainly in regions with high levels of crime. Depending on the structure, there is a dominant property crime, on the contrary, moral criminality is the least represented. The district of Ústí nad Labem is specific to the high level of crime committed by children and juveniles.*

Keywords: *Regional development, regional disparities, regional security, criminality, crime index.*

JEL Classification*: R11, H56.*

Introduction

The development of the individual regions does not proceed evenly, there are advanced and underdeveloped regions, with more or less dynamic of development and different quality of environmental conditions. The regions, as territorial units formed in the process of regionalization, show these differences in the form of regional disparities, which are most often seen in different natural conditions, demographic structure of the population, economic development of the region or the number of committed crimes, i.e. in crime.

These differences have an impact not only on the behavior of the population, but also on the activities of the regional self-governments that try to address these imbalances, both within the region and at the interregional level. The development of the region is conditioned by several factors, one of which is also the area of security. The issue of regional development is therefore closely related to the security of the region, as a region that is facing security problems is not usually able to provide the conditions for the required level of development and living standard of the population. Criminality is generally understood as an undesirable phenomenon against which the state is actively struggling. Effective crime prevention is therefore an essential step in promoting sustainable development.

1 Regional security and crime

Different levels of economic, social, environmental and technological factors in the region are the cause of regional disparities. Such manifestations of difference can be understood in two ways. In the first case, this is a competitive advantage, a positive factor that the region

uses to its advantage, thus increasing the quality of living conditions for the population. In the case of the second, the negative, it is a manifestation of a threat to the security of the region, for many different reasons. From this point of view, it is necessary to look at the issue of regional development in the context of regional security as an interdisciplinary science.

Security is a basic concept of security terminology. It can be understood as a general element, which is never absolute, or as the conscious activity of safety authorities that ensure security. Security can be defined as '*a state where threats to the object and its interests are eliminated to the minimum, and this object is effectively equipped and willing to co-operate to eliminate existing and potential threats*'. (Zeman, 2002: 13)

Security is defined in terms of the nature of the threats that cause it, the authorities and institutions that provide it and, finally, the objects to be secured. The Constitutional Act No. 110/1998 Coll. On the Security of the Czech Republic, as amended, implies that '*securing the sovereignty and territorial integrity of the Czech Republic, protecting its democratic foundations and protecting life, health and property values is a fundamental duty of the state*'. In particular, the security policy serves to ensure security, which assesses the urgency of individual threats and the associated risks and the state security system, which is an institutional instrument for securing the objectives of security policy. The state security system covers the central authorities of the Czech Republic (the President, the Parliament, the Government, the State Security Council, the central administrative authorities), the Territorial Authorities of the Czech Republic (municipalities and regions) and the executive bodies (armed forces, security services, intelligence services, rescue services and emergency services).

Socio-economic security is defined as respecting social standards, both written and unwritten (legally codified or uncodified), and maintaining the region's economic resilience, provided that the resulting state is a secure social and economic environment. '*Socio-economic security is a prerequisite for the region's versatile development, since it has a major impact on the quality of life in the region, as well as its attractiveness and the cost of securing security. The ideal status in terms of socio-economic security is the absence of crime and sufficient economic resilience in the region.*' (Kraftová, 2016: 51)

The issue of crime is explored by a field of science called criminology. Criminology is a multidisciplinary science, as it uses knowledge from many fields of science (criminal law, sociology, forensic psychology, psychiatry, medicine, victimology and penology), but also empirical and theoretical science, as it encompasses its own special terminology and research methods. Basic functions and tasks of criminology include the explanatory function that explains the phenomena associated with crime and its control, a descriptive function that characterizes empirical crime facts from the area of crime and a prediction function that generates predictions of crime development that can be used to take appropriate action. Other features of criminology include the systematic storage of criminological knowledge or the creation of definitions. (Holcr, 2009)

Criminality generally constitutes an offense, committing offenses and criminal offenses (CO) in a given territory at a certain time. However, these can also be actions that are not unlawful but are undesirable for society. Criminality in the broader sense also includes the field of crimes committed by criminals (juveniles) who were not more than 15 years old at the time of committing the act and were therefore not criminally liable. Such acts are referred to as delinquencies.

Criminality can be distinguished from apparent (registered), hidden (latent, unregistered) and actual (total). Apparent criminality provides information that is documented in the official statistics of law enforcement agencies (LEA). These are mainly police crime statistics, judicial statistics issued by the Ministry of Justice of the Czech Republic, statistics of the Czech Probation and Mediation Service and statistics of the prison service issued by the

General Directorate of the Prison Service of the Czech Republic. Statistical data on crime often distorts or influences legislative changes, amnesty, time lag between committing a CO and its registration with law enforcement agencies (LEA) or artificial latency. Hidden crime is not backed up in official stat istics because it is linked to difficult detection, proofing and is represented by so-called black and gray numbers. Black numbers are represented by COs that have not been discovered by the law enforcement agencies. Gray numbers, sometimes referred to as artificial latencies, describe LOs that have been detected by the law enforcement agencies, but have not yet been reported in official statistics (the perpetrator was captured but not convicted). The last group is real crime, which is a clear summary of apparent and hidden crime.

The Criminal Code is described in Act No. 40/2009 Coll., The Criminal Code which, in § 13 paragraph 1, describes CO as '*an offense referred to as criminal by the Penal Code and showing the features stated in such a law*'. The offender's criminal liability is then considered when intentional fault or neglect. '*Criminal offense is also understood as its preparation, attempt, organizing, instruction or assistance in committing a criminal offense.*' (Czech Republic, 2009) However, to be a CO, its features must be fulfilled, including wrongdoing, type features of CO which characterize the object, the subject, the objective and the subjective aspects of the CO, as well as the general features established by the Act No. 40/2009 Coll., the Criminal Code (age and sanity) and with juveniles their intellectual and moral maturity. (Svatoš, 2012)

The level of crime is constantly changing and pulsing. Therefore, it is important to find, for its description, examination, evaluation and comparison, such indicators that will have a sufficiently large informative character to illustrate the development of crime in a given territory. These indicators help to elucidate the causes of crime, to form appropriate methods and forms of criminal policy and, finally, to evaluate effectiveness.

Basic crime indicators include the state of crime, which is the extent of the infringements recorded by the LEA. These are, therefore, those COs whose condition is bound to specific territory and time. This indicator is expressed in absolute values, it is the most used and at the same time the most variable. The second indicator is the level of crime (crime rate), the ratio of the total number of COs to the total number of the selected population, taking into account both the state of crime and the demographic indicators (age, sex) and is usually stated in indexes of 10 thousand. Inhabitants (sometimes 100 thousand), depending on the size of the area under consideration. The Crime Index (hereinafter CI) thus expresses an objective level of the population's burden by crime in the given area. (Rumlová, 2016)

Criminality is also characterized by a different structure that describes the overall distribution of crime by type (violent, property, moral, economic), according to the form of its understanding (traditional and organized), by the characteristics of perpetrators and victims (gender, age, social status) and finally according to the nature of the damage caused, the severity of the CO, etc. The total criminal activity can be broken down in the Czech Republic according to the tactical statistical classification of the Czech Police for the acts of violence, moral crimes, property crimes, other crimes, remaining criminality and economic crimes. The most important group is property crime. Another possible indicator of crime is its dynamics, its volatility over time. This indicator brings important insights into the area of predicting future developments in crime and can be described by the direction and speed of ongoing criminality changes (increase, decline or stagnation of crime at a certain time, seasonal manifestations and trends in crime development). (Rumlová, 2016)

The criminality indicators are closely related to criminogenic factors that can be imagined as risk factors that trigger or facilitate committing a CO. Criminogenic factors can be broken down into objective that affects the entire society (political, economic, moral) and subjective, which are closely related to the structure of the personality, the psychological and physical

mentality of the individual. Objective criminogenic factors can be further divided into four groups of sociodemographic characteristics (sex, age, offender's residence), social economic status, degree of education and environmental impact (mass media, addictive substances, mental disorders, etc.).

2 Purpose of the contribution and methods of processing

The paper describes the issue of crime in the Czech Republic and its development during the period 2008 - 2016. In this timeframe, an analysis of crime for the whole territory of the Czech Republic and consequently regional differentiation of crime at the level of regions and districts is carried out, based on the available statistics of the Czech Statistical Office (CSO) and the Police of the Czech Republic (PCR). Using the crime index ranking of the regions and districts most affected by crime is compiled. Based on the established values, the districts with the highest crime rates are further analysed.

The aim of the contribution is to assess the variability of crime at the regional / district level in the Czech Republic between 2008 and 2016, to identify and characterize the districts with the highest crime rates. In connection with the stated objective of the contribution, three research questions have been formulated, which relate to the districts with the highest crime rates. Their answer is always related to the verification of hypotheses formulated by them.

Research Question 1: Are the districts with the highest degree of CI in the regions, which in terms of this indicator (except for the Capital City of Prague) are placed in the first three places?

Hypothesis H1: Highest crime index districts are in most cases located in the regions with the highest crime rates. To accept the hypothesis, it is necessary that at least 7 out of 10 analysed districts with the highest Crime Index rate belong to regions that ranked in the first three places in terms of CI and thus exhibited a long-term high crime rate.

Research Question 2: Is the distribution of crime according to the tactical-statistical classification groups in the districts with the highest crime rate differentiated?

Hypothesis H2: The representation of individual groups of COs according to the tactical-statistical classification is very similar in the ten districts with the highest crime rate, characterized in particular by the highest representation of the property crimes and the lowest representation of moral crimes. To accept the hypothesis, it is necessary for all monitored districts with the highest Crime Index rate of the property crime to show at least 50% share of the total crime, which confirms the nationwide trend in terms of distribution of crime according to the tactical-statistical classification. At the same time, it is necessary that moral crime is represented the least in all districts.

Research Question 3: Is the structure of crime offenders significantly influenced by the number of children and juveniles?

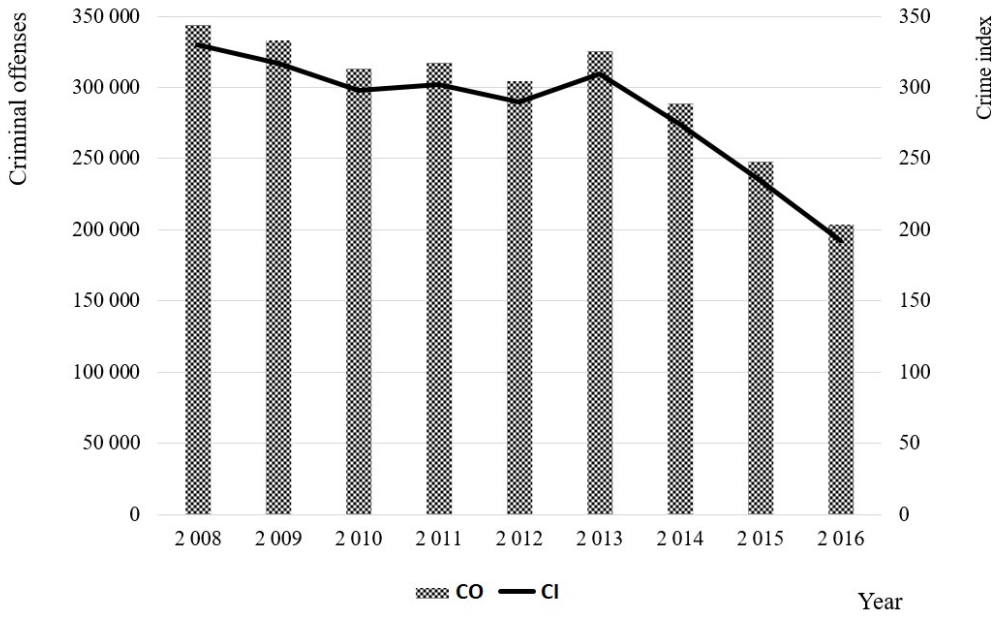
H3 Hypothesis: The proportion of child and juvenile offenders is insignificant in districts with the highest crime rates. To accept the hypothesis, it is necessary that the proportion of child and juvenile offenders does not represent more than 10% of the total number of perpetrators in any of the 10 districts surveyed.

3 Criminality in the Czech Republic and its regional differentiation

The development of total crime and the crime index throughout the Czech Republic for the period 2008 - 2016 is shown in Fig. 1. It is evident that the number of detected COs has been gradually decreasing since 2008, with exceptions in 2011 and 2013. In 2013, there was a significant increase in the monitored variable. This fluctuation caused an increase in the number of COs in the Capital City of Prague, it was about 10 thousand COs, more specifically

in the field of property crime (simple theft). An increase of 2 thousand COs was recorded this year in the Central Bohemian Region. In the other regions, there was only a slight increase in police statistics.

Fig. 1: Development of total crime and CI in the Czech Republic in 2008 - 2016



Source: own processing based on data CSO (2017), PCR (2018).

At the end of 2016, there were 40.8% less COs than at the beginning of the reference period. The total crime rate decreased by almost half, from the initial 343 799 offenses to 203 574. Decreasing trend of CI was also recorded during the monitored period, which, unlike the detected offenses, takes into account the development of the population and is given in thousands. CI ranged from an initial value of 330 to 193 at the end of the period. On the basis of these data the development of total crime can be assessed positively as the number of COs and CI are decreasing.

Regional differentiation of criminality at the level of regions of the Czech Republic was carried out similarly with the help of Crime Index calculations. At first, the average population levels were determined, followed by the number of COs found for all regions for the whole reporting period. Then, the calculation of Crime Index (the share of the middle status of the selected part of the population and the number of detected COs per 10 000 inhabitants) was followed. From the calculated values, the order of the individual regions was created, where the first place is the region with the highest crime rate, Crime Index had the highest value here. On the other hand, the fourteenth position belongs to the region which is considered the best in terms of safety. The development of Crime Index in individual regions of the Czech Republic is shown in Tab. 1. For comparison, the development of Crime Index in the Czech Republic is complemented.

Tab. 1: Development of CI in regions of the Czech Republic for the period 2008 - 2016

Region/year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
PHA	678	677	591	599	582	659	574	508	411
STC	350	332	304	296	277	288	238	193	156
JHC	251	224	240	233	220	236	231	198	161
PLK	268	250	242	241	224	239	209	183	157
KVK	293	287	258	267	251	272	224	192	155
ULK	397	355	352	366	332	361	314	256	210
LBK	355	335	313	312	296	318	285	254	195
HKK	226	206	201	199	195	195	185	156	123
PAK	196	179	172	177	174	176	162	132	109
VYS	172	174	169	168	167	172	159	135	111
JHM	277	262	254	257	253	255	232	203	172
OLK	232	222	214	225	225	232	221	199	170
ZLK	176	170	160	156	151	157	150	136	120
MSK	328	334	319	345	331	350	305	250	204
CR	**330**	**317**	**298**	**302**	**290**	**310**	**274**	**235**	**193**

Legend (Tab. 1 and Tab. 2): PHA – Prague, the Capital City; STC – Central Bohemian Region; JHC – South Bohemian Region; PLK – Plzeň Region; KVK – Karlovy Vary Region; ULK – Ústí nad Labem Region; HKK – Hradec Králové Region; PAK – Pardubice Region; VYS – Vysočina Region; JHM – South Moravian Region; OLK – Olomouc Region; ZLK – Zlín Region; MSK – Moravian-Silesian Region; CR – the Czech Republic.

Source: own processing based on data CSO (2017), PCR (2018).

Based on Crime Index values for the whole Czech Republic, Tab. 1, the Crime Index values of regions are highlighted, those exceeding the national representation of this crime indicator. Throughout the monitored period, it was Prague, Ústí nad Labem Region, Liberec Region, except for the first year Moravian-Silesian Region and Central Bohemian Region in the first three years. From the values found in Tab. 1, the order of the regions according to the Crime Index level was established, shown in Tab. 2. In the first place in all monitored periods, the Prague with Crime Index was well above the national average.

Tab. 2: Rank of the Czech Republic regions by size of Crime Index in 2008 - 2016

Rank	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Region	PHA	ULK	MSK	LBK	STC	JHM	KVK	JHC	PLK	OLK	HKK	PAK	VYS	ZLK

Source: own processing based on data CSO (2017), PCR (2018).

In 2008, the Crime Index value in the Czech Republic was 330 and in Prague 678, at the end of the monitored period Crime Index in the Czech Republic was 193, but in Prague it was more than doubled, namely 411. From the point of view of the average, the City of Prague comprised 24.6% of the total number of COs. This fact is due to the high concentration of the population and the fluctuations of foreign tourists. In second place was, based on the size of Crime Index, the Ústí nad Labem Region throughout the whole period under review. On average, crime in this region reached 9% of the total number of detected COs. The third place was occupied by the Moravian-Silesian Region with 12.7% of the Czech Republic's total. On the contrary, the most secure region of the Czech Republic was the Zlín Region, which was followed by the Vysočina Region. The two regions together accounted for an average of about 5.7% of the total number of detected COs in the Czech Republic.

4 Differentiation of crime at the level of districts of the Czech Republic

The regional differentiation of criminality at the level of the districts of the CR is carried out similarly to the regional level with the help of Crime Index calculation. Tab. 3 describes the order of the ten districts of the Czech Republic which have the highest Crime Index values in the monitored period. In the Ostrava-city district, the highest Crime Index was measured over the whole monitored period, therefore it has long been the region with the highest crime rates in the Czech Republic.

Tab. 3: Rank of the ten districts of the Czech Republic with the highest Crime Index in 2008 - 2016

Rank	District	Rank	District
1.	Ostrava-City	6.	Teplice
2.	Brno-City	7.	Česká Lípa
3.	Ústí nad Labem	8.	Liberec
4. - 5.	Chomutov	9.	Kolín
4. - 5.	Most	10.	Karviná

Source: own processing based on data CSO (2018), PCR (2017).

Tab. 4 again shows the order of ten districts with the highest crime rates. This time, however, Crime Index development is included for the whole period under review. Measured Crime Index values show a declining trend in crime. In all the districts monitored here, there has been a significant decline in CI since the beginning of 2008, of the order of 30 - 50%.

Tab. 4: Development of CI in the districts of the Czech Republic with the highest crime rates in 2008 - 2016

District/year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Ostrava-City	535	572	555	551	510	539	464	384	345
Brno-City	471	432	426	408	408	412	364	330	299
Ústí n/Labem	433	390	409	410	382	394	363	301	269
Chomutov	468	429	391	422	351	397	331	248	225
Most	434	371	363	354	371	469	358	315	243
Teplice	475	411	395	397	324	417	319	268	240
Česká Lípa	449	426	387	390	338	370	293	290	238
Liberec	341	332	312	331	332	360	322	293	240
Kolín	353	360	404	383	328	368	301	208	176
Karviná	326	324	298	371	349	347	313	249	210

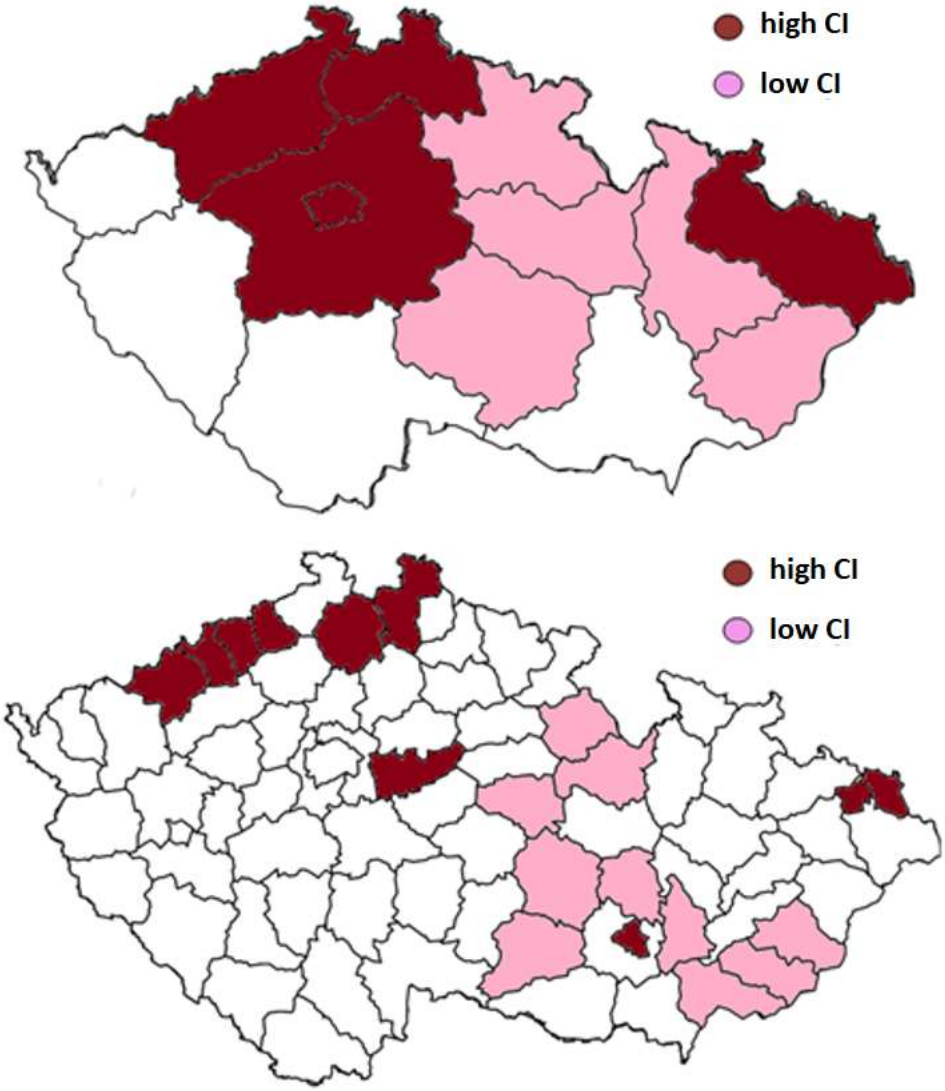
Source: own processing based on data CSO (2018), PCR (2017).

Interestingly, the ten districts with the lowest crime rates are Žďár nad Sázavou, Hodonín, Třebíč, Uherské Hradiště, Vyškov, Ústí nad Orlicí, Rychnov nad Kněžnou, Blansko, Chrudim, Zlín. The safest district is, in terms of Crime Index ranking, clearly the Žďár nad Sázavou district, located in the Vysočina Region, which is generally considered to be very safe from a criminal point of view. In 2016, the value of Crime Index was only 87, which is the least of all districts for the entire reporting period. On the tenth place is Zlín district in terms of crime. In the districts described here, there is also a significant decrease in Crime Index since the beginning of the measurement.

For visual comparison of Crime Index measurement results at regional and district level Fig. 2 can be used. The maps of the Czech Republic are shown in this figure, first for the

regional and then for the district level, where the regions and districts with the highest and lowest Crime Index in the long run are highlighted.

Fig. 2: Map of Regions and Districts of the Czech Republic showing Crime Index



Source: own processing based on data CSO (2018), PCR (2017).

Here we can find the answer to the first question of whether the districts with the highest degree of Crime Index are in the regions, which in terms of this indicator (except Prague) placed in the first three places. To accept the H1 hypothesis it was established that at least 7 out of 10 analyzed districts with the highest degree of Crime Index would belong to Ústí nad Labem Region, Moravian-Silesian Region and Liberec Region. The H1 hypothesis has been confirmed in the work, since the highest Crime Index districts have been confirmed in 8 out of 10 districts with the same crime indicator. These were the districts of Ústí nad Labem, Chomutov, Most, Teplice (from Ústí nad Labem Region), Česká Lípa, Liberec (from Liberec Region), Ostrava-City and Karviná (from Moravian-Silesian Region).

From the available data of the PCR, the differences in the number of detected COs in individual tactical statistical classification categories are analyzed in the area of rime. These are the average values that were established based on the data available from 2008 - 2016. The percentage of COs groups according to tactical statistical classification in individual districts is shown in Tab. 5.

Tab. 5: Average shares of COs groups according to tactical statistical classification in the districts with the highest Crime Index rate

District/share CO (%)	**Violent**	**Moral**	**Property**	**Other**	**Remaining**	**Economic**
Ostrava-City	6.0	0.4	71.9	5.2	8.6	7.8
Brno-City	4.7	0.6	66.3	7.3	9.6	11.5
Ústí nad Labem	6.5	0.7	59.3	7.8	14.3	11.3
Chomutov	7.1	1.0	56.4	9.0	16.6	9.9
Most	7.4	0.6	60.0	9.4	12.2	10.4
Teplice	7.5	0.8	59.2	9.1	13.4	10.0
Česká Lípa	7.2	1.4	55.4	10.3	15.7	10.0
Liberec	8.0	0.9	58.9	9.2	14.3	8.7
Kolín	5.9	0.7	62.1	8.7	13.1	9.4
Karviná	8.2	0.7	64.3	7.4	12.0	7.4
Average	**6.9**	**0.8**	**61.4**	**8.3**	**13.0**	**9.6**
Variation range	**3.5**	**1.0**	**16.5**	**5.1**	**8.0**	**3.7**

Source: own processing based on data PCR (2017).

The lowest representation in all districts is shown clearly by moral COs, which accounted for 0.4 - 1.4% of the total crime rate, with the lowest representation being recorded by the Ostrava-City district and the highest being the district of Česká Lípa. In the second place were violent COs situated in the range of 4.7 - 8.2%, while the smallest share of this category was recorded by the Brno-City district, and the largest share of the district of Karviná. The third place was occupied by other criminal acts with a share in the range of 5.2 - 10.3%, the lowest representation of which was in the district Ostrava-City, and the highest in the district of Česká Lípa. On the fourth place were economic crimes, reaching values between 7.8 - 11.5%, with the lowest representation of this category being recorded by the Ostrava-City district and the Brno-City district. The remaining crime formed the second most frequent group of COs with an average share of 8.6 - 16.6% of the total number of COs. This category was least represented again in the district Ostrava-City, on the contrary the most in the Chomutov district. In all districts, the category of property crime was the most represented, representing 55.4 - 71.9% on average. The smallest share of property COs was recorded in the Česká Lípa district, while the highest was in the district Ostrava-City.

This is where the second research question can be answered. The comparison of crime variability in the ten districts with the highest Crime Index rate shows that the composition of crime in the examined districts is very similar. For the above-mentioned H2 hypothesis, it was established that the proportion of property crime must be at least 50% in all the districts monitored and the moral criminality must be represented the least. The hypothesis H2 was accepted. No extreme values were found to indicate that one of the districts would deviate from the average. Only the districts Ostrava-City and Brno-City were different in terms of the number of detected COs. It was in the first mentioned district that the highest Crime Index was measured, which was caused by the highest number of property COs in all monitored districts. In other categories of criminality, the district of Ostrava-City had logically lower representation. This was also the case in the Brno-City district, which ranked second in terms of property crime.

The districts are further compared based on the proportion of child and juvenile offenders from the total number of prosecuted and investigated persons. Although these numbers may seem negligible in some districts, attention must be paid to them, since child and juvenile delinquency often starts with property crime in the form of minor thefts, but they can easily change into organized crime if they are not given enough attention aspects of preventive and support programs that seek to eliminate this issue. The average share of child and juvenile offenders in individual districts is shown in Tab. 6.

Tab. 6: Share of child and juvenile offenders of COs in districts with the highest Crime Index

District/offenders	**Children (1 - 14)**	**Juveniles (15 - 17)**
Ostrava-City	2.0	5.0
Brno-City	1.3	3.6
Ústí nad Labem	4.1	10.0
Chomutov	1.8	3.3
Most	2.1	3.2
Teplice	1.5	2.9
Česká Lípa	1.9	4.5
Liberec	1.7	3.1
Kolín	1.0	2.3
Karviná	1.5	4.4
Average	**1.9**	**4.2**
Variation range	**3.1**	**7.7**

Source: own processing based on data PCR (2017).

The share of child offenders (1 - 14 years) in the examined districts reaches values ranging from 1 - 4.1%, with the lowest proportion of this category being recorded by the Kolín district, while the highest was recorded in the district of Ústí nad Labem. In terms of representation of juvenile offenders (15 - 17 years), these are shares in the range of 2.3 - 10%, of which the lowest is the juvenile delinquency in the district of Kolín and most in the Ústí nad Labem district.

Now we can answer the third research question, which is related to the significance of the proportion of child and juvenile offenders. Tab. 6 shows that criminality of children and juveniles does not represent a significant problem in the districts, except for the district of Ústí nad Labem. The hypothesis H3 has not been accepted. It was in Ústí nad Labem district that the total number of child and juvenile offenders was almost double the average values. The children and juveniles in the Ústí nad Labem district accounted for 14.1% of the total number of perpetrators. Especially in the juvenile category, these were very alarming values, as offenders aged 15 - 17 years, according to the statistics of the Czech Police, accounted for 10% of the total number of prosecuted and investigated persons. These are smaller organized groups of offenders, which focus mainly on property crime.

Conclusion

The issue of regional disparities reflects several economic, environmental, but especially social factors that incite inequalities between regions. Such factors include criminality which, in connection with other sociopathological phenomena, differentiates the territory of the Czech Republic and creates disparities. The development of crime in the Czech Republic in 2008 - 2016 can be assessed positively. During this period there was a significant decrease in the number of identified COs, the decreasing trend of crime was disrupted only in 2011 and 2013. Overall, however, crime has fallen by more than 40% since the beginning of the monitored period. A marked decline was also observed in terms of Crime Index, which considers the crime in relation to the number of population. In the period under review, this indicator decreased from an initial value of 330 to a final of 193 of COs per 10 000 residents.

The regional differentiation of crime, which was based on the established values of Crime Index, determined the development of criminal activity in the individual regions of the Czech Republic. The ranking of regions according to the level of Crime Index showed that the highest values of this indicator were recorded for a long time by Prague, whose criminal activity occupied an average of about 24.6% of the total number of COs in the Czech Republic. The second place was held by Ústí nad Labem Region, third place was occupied by

Moravian-Silesian Region. The Liber Region ranked fourth, followed by the Central Bohemian Region. The lowest values of Crime Index were recorded by Zlín Region, Vysočina Region, Pardubice Region, Hradec Králové Region and Olomouc Region.

Crime variability was further investigated at district level according to Crime Index, where 10 districts from the final ranking with the highest Crime Index rate were selected and analyzed. These districts were Ostrava-City, Brno-City, Ústí nad Labem, Chomutov, Most, Teplice, Česká Lípa, Liberec, Kolín and Karviná. The hypothesis H1 was confirmed, which supposed that the regions with the highest CI value would be also in the regions with the highest value of this indicator. From the mentioned districts it was possible to state that the problem of high criminality was mainly in the Ústí nad Labem Region with four districts represented, the Moravian-Silesian Region and Liberec Region, represented here by two districts. It is in these regions that the presence of criminogenic factors has been reflected. These included a high rate of unemployment, the presence of a large number of socially excluded localities, the negative impact of border areas, the criminality of children and young people, and, last but not least, the high number of people dependent on state support.

The development of crime according to the tactical-statistical classification categories was considerably uneven in all districts, which does not apply to the share of these categories in the overall criminal activity investigated by the second research question. The hypothesis H2 was confirmed, which did not predict significant differentiation in all the analyzed districts. The ranking of individual groups of COs was also confirmed, with property crime, which averaged 61.4%, followed by remaining criminality with 13% share and economic crime with a share of 9.6%. The smallest representation had moral crime in all the districts mentioned. From the point of view of individual groups of tactical-statistical classification and their share, there were no bigger differences between the districts, only Ostrava-City districts with 71.9% of the represented property crimes was different. This fact was also affected by the fact that the Ostrava-City district had the highest Crime Index, the highest number of detected COs, and had long been faced with all the mentioned criminogenic factors. Similarly, this was also the case for the number of child and juvenile offenders. In all districts, these categories were represented very similarly, only in Ústí nad Labem district their double share in criminal activity was recorded. Therefore, the H3 hypothesis was not confirmed here. In the district of Ústí nad Labem, 14.1% of these offenders were found to be total criminals, which exceeded the 10% threshold of the hypothesis.

Acknowledgement

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COMMUNICATION MODELS OF THE BUSINESSES IN RELATION TO E-GOVERNMENT

Stanislava Šimonová

Abstract: *Electronization and digitalization of the public administration services performance is one of the long-lasting priorities of the Czech Republic, of course in coordination with the European Union procedure, in correspondence with the strategies of the European committee oriented to the information and communication technologies (ICT) in the public administration. The eGovernment heads towards creating user friendly on-line services for businesses as well as citizens for decreasing administration work, for remote contact with the public administration. It also enables safe and protected services of the public administration. These visions are gradually realized by the ICT projects in coordination with connected legislation. It means, in its consequence, constantly changing environment which is difficult not only for the institutions of organs of public administration, but mainly difficult and burdensome for businesses out of the public administration. This text is focused on the situation of small and medium-sized businesses. These do not have specialized ICT departments, but must manage their performance of legal obligations towards the state, which means constantly changing and developing technological-legislative aspects of the eGovernment. This text maps the present basic communication models in relation to businesses towards the eGovernment.*

Keywords: *eGovernment conception, Public administration services, Communication models, Business company.*

JEL Classification*: M15, H11.*

Introduction

Electronic communication together with the web technologies development enables using the electronic services in the field of public administration, which is generally called by the eGovernment. Digital services were built on principal of using information and communication technologies by public administration (and in public administration) combined with organizational change and also with new abilities. Just these abilities should bring improvement of public services and democratic process and strengthen the support for public policies [1], [8], [14]. Basic definition of the eGovernment is referenced to all inner and outer functions and processes of public administration, which are digitalized; the aim is to make public power more effective, to provide information without troubles, to improve the availability and provide public services to the citizens and also to strengthen citizens' position through the access to the information and to participate in deciding about public concerns. The main asset should be lower rate of corruption, higher transparency, more comfort for the users, an increase of revenue and reduction of expenses [5], [15].

The eGovernment nowadays is influenced by several aspects. One of the aspects is better and better appreciation, that it is necessary to interconnect some of the provided services with the principles of the procedural control and mainly with the principles of the procedural improvement thus focusing on measuring and evaluating the quality of the services provided in order to improve them [13]. The next aspect is to coordinate the implementation of the eGovernment in many different countries within the European Union. Basic definition of the European Committee for the eGovernment and Digital Public Services is – 'Effective eGovernment can provide a wide variety of benefits including more efficiency and savings for

governments and businesses, increased transparency, and greater participation of the citizens in political life' [4]. Third aspect relates to widespread development of the information and communication technologies, which brings also unauthorized access to the services or their abuse. Therefore the safety and protection of the provided services is one of the priorities, where it is necessary to secure cyber safety mainly in the electronic communication.

1 The eGovernment Conception of the Czech Republic

Development of the eGovernment in the Czech Republic is determined by strategic documents, such as e.g. Strategy of Effective public administration and user friendly public services for the years 2007 and 2015 (Government Resolution no. 927/2007), Strategic framework of the public administration development of the Czech Republic for the years 2014 - 2020 (Government Resolution no. 680/2014) and just created Information Conception of the Czech Republic 2018+. Visions and aims set in these strategies are realized by IT project (always connected to legislation). Among the realized projects belong e.g. Czech POINT (an acronym meaning Czech Filling-in and Verification Information National Terminal), the information system of data boxes, or basic overwork of the Basic Registers and establishment of the so called Unified Reference Truth. The Czech POINT is a network of assisted public administration centres where every citizen can obtain all the information about the data kept on him or her by the state in its Central Registers; this is where each citizen will be able to fill-in any application to public authorities [10]. The Information System of Data Boxes facilitates communication of public authorities because it is faster and cheaper, on the other side it provides the secure delivery of the messages; authorities have to communicate with business enterprises only via data boxes as well as business enterprises and citizens can use their data boxes to apply for permissions, approvals or licences. One of the main tasks in construction of information system of data boxes is to guarantee secure way for official announcements or applications [11]. The Central Registers represent a tool that as the only subject, provide relevant and unquestionable data, so-called Reference Data. The role of Central Registers can be expressed by a slogan 'only documents and not people themselves will be circulating in the authorities' - the relationship between the citizens and the state will change fundamentally [9].

Present information conception of the Czech Republic 2018+ include five basic viewpoints [2] – user friendly online services, development of the overall environment supporting the digital technologies, digital friendly legislation, effective and centrally coordinated ICT, improvement of the capacities and competent ICT in the state sector. The important point is creating the user friendly services for the citizens and businesses. It includes Citizen Portal, then the process modelling of the run agenda and mainly the development of the services including the National Catalogue creation of the eGovernment services. Next priority is the conception of the digital accessible legislation, where the current laws must be digitally accessible and should respect the possibilities of IT processes. The third step is the development of the overall environment supporting digital technologies. The main aim is at the digital economics, shared economics, impact to the laws and hand in hand with it goes also questions of education. Effective public administration is not just a question of organizational and spatial definition of government levels, but a much more complex process that includes a clear and precise definition of the tasks; individual levels of government are the guarantors of volume and levels of quality of public services [6], [17]. The important field is effective and centrally coordinated ICT usage. It is about aiming at optimization and overall efficiency, when we also count on the feedback from the citizens. Electronic communication within public administration of the Czech Republic now comes through the big change, because the new regulation eIDAS (electronic IDentification, Authentication and Trust Services) [12] is going to take effect in September 2018 within the EU. It was established in the EU Regulation 910/2014; it is a set of standards for electronic

identification and trust services for electronic transactions in the European Single Market. The eIDAS Regulation introduces the principle of non-discrimination in the legal effects and admissibility of electronic documents in legal proceedings, and ensures that they work across borders. It is only by providing certainty of the legal validity of all these services, that businesses and citizens will confidently go digital [3].

2 Communication and services of the eGovernment

Communication from the eGovernment / to the eGovernment / within the eGovernment is about different groups, which are – business sector, citizens, parts of the public administration and also employees of the public administration [7], [16]. On the basis of these groups we can identify these communications – Government-to-citizens, Government-to-businesses, Government-to-government and Government-to-Employees.

Government-to-citizens represents the creation of easily accessible services and from the point of view of the utility also easy services in one contact point for every citizen (Czech Point). The example of the concept is e.g. Portal of public administration providing help to public when solving every-day situations. **Government-to-businesses** is aimed at creation of the user friendly and united electronic communication for every agenda. The example of this concept is e.g. Portal of the Public Administration, eJustice, Financial Administration, Czech Social Security Administration, portals of the Health Insurance Companies, Customs Administration of the Czech Republic, Czech Administration of Land Surveying and Cadastre, Data Boxes etc. Relations between businesses and state sector are mainly about the structured data. **Government-to-Government** aims at creating the administration easier at all levels of public administration using the communication infrastructure. The example of this concept is e.g. Communication Infrastructure of Public Administration, then Information System of Basic Registers such as Citizens Register, Register of People, Register of Land Identification and Possessions, Law and Obligation Register, Transfer Identifiers of Individuals. **Government-to-Employees** is about improving inner efficiency thanks to taking over the best practise from commercial sphere mainly in the field of suppliers' relations management and financial administration. Among the output should belong increasing of loyalty and decreasing fluctuation of employees. The main aim is an efficient communication within the state administration and the local administration. This field can be used also in coordination with the international cooperation in many fields, mainly in ICT.

Communication of the businesses with public administration is problems, which encroaches straight into the running of the businesses. From the point of view above mentioned enumerations they are the services Government-to-businesses. Electronization of some agenda is depended on the electronic communication usage and also on related legislation development. Specific portals use services Government-to-businesses, which are mainly individual tools of the eGovernment. These portals are bond to Public Administration Communication Infrastructure and use individual communication channels. Thanks to these channels there is running its own communication of business information environment with the tools of the eGovernment.

As it was mentioned above, important priority of the eGovernment of the Czech Republic is to build user friendly services for businesses and citizens. Mainly businesses have many legal obligations towards the public administration, which are burdensome especially for small and medium-sized businesses. The difficulty of it is caused by not only implementation of the relevant tools and services, but also by using suitable communication channels and the difficulty mainly results from the situation that IT field of the services and related legislation is still developing, changing or widening.

3 Communication models of the businesses in relation to the eGovernment

Regional businesses, meant small and medium-sized businesses of the region, have defined legal obligations towards the state. On the basis of legal standards, there was firstly created an overview of legal obligations for small businesses, i.e. obligation in relation to the state. These obligations are [7]:

- Financial Administration: Value Added Tax Return (VAT); VAT Summary Report; VAT Control Statement; Real Estate Tax Return (year backwards); Road Tax Return; Corporate Income Tax Return; Special Tax Rate from the Corporate Income Tax Account; Rent, Payment of the Public Limited Company Shares; Special Tax Rate from the Personal Income Tax Account; Work Arrangement; Employment Tax Account (for the employees – done yearly); Registration Form for Corporate (change forms); Road Tax;
- eJustice: Business Register Statements (Annual Report, Profit and Loss Account, Balance Sheet, Annexes to the Annual Financial Statement);
- Customs Administration: Single Administrative Document (Czech abbrev. JSD, Import); Intrastat (Import and Export); Arrears Request;
- Czech Social Security Administration: Register Employees In and Out of the System, Report about Changes; Monthly Statement about Social Insurance; Pension Insurance Record – yearly or after termination of employment, when asking for pension, when asking for recounting pension (when the pensioner is working); Statements related to Sickness Insurance Benefit; Application to the Employers Register;
- Statutory Liability Insurance of the Organization: Insurance Company 'Kooperativa';
- Employment Office: Monitoring Questionnaires; Annual Announcement of Discharging the Mandatory Share of Disabled People;
- Czech Statistical Office: ISPV – Information System about Average Income (Czech abbrev. ISPV), Processor of ISPV is company TREXIMA (quarter report of the company, year report); Other Statistics (Dante web);
- Health Insurance Companies: Register Employees In and Out of the System, Report about Changes; Monthly Statement about Health Insurance of the Employer; Application Form and Employer's Record Sheet with Change Reporting;
- Indebtedness Confirmation Form: Czech Social Security Administration, Financial Administration, Health Insurance Companies.

These obligations are fulfilled by the eGovernment services (the most often use via portals) and using electronic communication (via communication channels). Therefore the identification of the legal obligations was the starting point for creation of the single communication model. Together with it, there were characterized these elements for every single model:

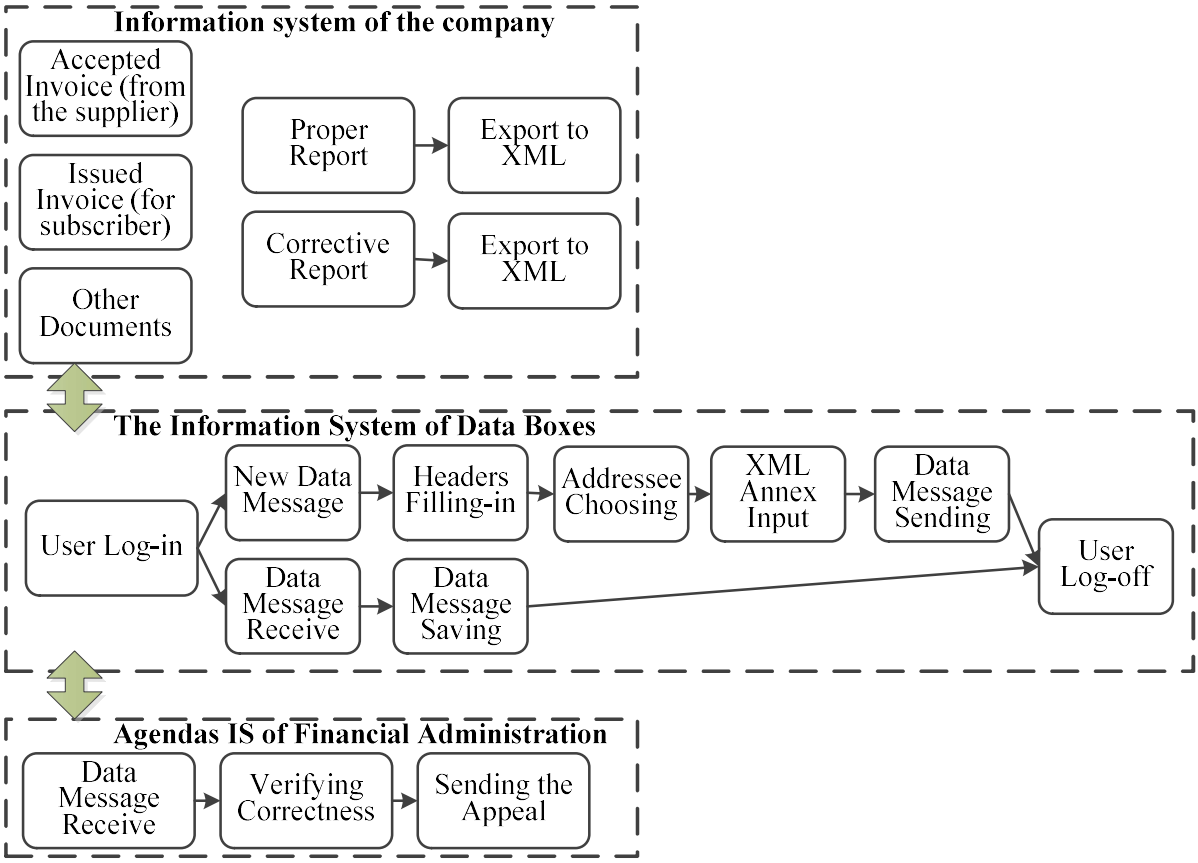
- Participants: people participating in it (functional places), which participate in performance of the single service.
- Communication channel: which communication channel is necessary to use.
- Information systems: which information system must be cooperated with performance of the single service.

- Evaluation: to identify advantages and disadvantages of small and medium-sized businesses.

3.1 Communication models in relation to the Financial Administration

The communication of the company in relation to the Financial Administration takes place via IS of Data Boxes (see Fig. 1), or via application Electronic Submissions for Financial Administration.

Fig. 1: Communication model of the company with Financial Administration via ISDS



Source: own

The characteristics of the model are:

- Participants: Authorized person from the company; Financial Administration officer.
- Communication Channels: Internet, the Communication Infrastructure of the Public Administration (Czech abbrev. KIVS).
- Information systems: IS of the company, Agendas IS of Financial Administration, IS of Data Boxes (Czech abbrev. ISDS) or Electronic Submissions for Financial Administration (Czech abbrev. EPO).

Advantages of the model are:

- variant ISDS: Direct sending via ISDS.
- variant EPO: According to the formal check of the EPO portal there is a relevant check of the entered data and the structure of the requirements from the Agendas Information System of Financial Administration which is not supported in the IS export.

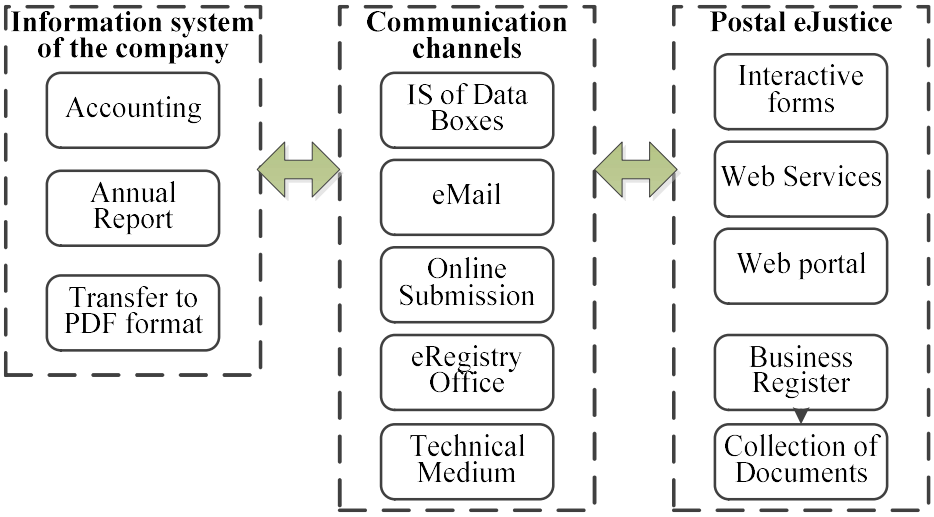
Disadvantages of the model are:

- variant ISDS: According to a lot of changes there is possible to happen that the export data from the IS of the company does not correspond with the structure of the data for Financial Administration.
- variant EPO: Necessary to import data to EPO portal. Not direct sending via EPO portal.

3.2 Communication model in relation to the Business Register

The communication of the company in relation to the Business Register takes place via eJustice (Business Register and Collection of Documents) (see Fig. 2).

Fig. 2: Communication Model with Business Register and Collection of Documents



Source: own

The characteristics of the model are:

- Participants: Authorized person from the company, Financial Administration officer.
- Communication Channels: Internet, the Communication Infrastructure of the Public Administration (Czech abbrev. KIVS), Portal eJustice.
- Information systems: IS of the company, Portal eJustice, IS of Data Boxes (Czech abbrev. ISDS).

Advantages of the model are:

- ISDS – Message must not be signed electronically, there is possible to use the signature fiction (§18 law no. 300/2008 of the Documents Collection).
- Technical data medium has its size of all PDF documents limited by this technical data medium.

Disadvantages of the model are:

- Maximal size of all PDF documents for one submission via data box or email or online submission via eRegistry Office is 10 MB.
- In case that the documents are sent via data box by the different person (e.g. counsellor, accounting company etc.) must be signed by accepted electronic signature or must be send an annex of electronically signed power of attorney, or

via authorized conversion accepted power of attorney or link to the power of attorney (which is already handed in the court).

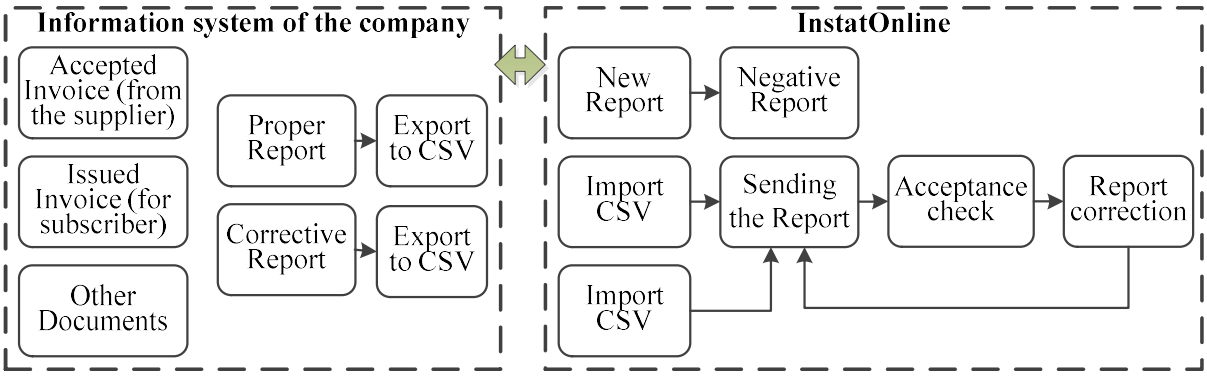
- Submission by documents sent via email or via online submission or web application eRegistry; Office must be electronically signed by qualified certificate published by accredited provider of certificate services.
- To the technical data mediums must be sent the cover letter which must be signed by statutory authority in person. If the document is sent by different person (counsellor, accounting company etc.), it must be sent an annex of signed power of attorney or link to the power of attorney, which is already handed in the court.

3.3 Communication models in relation to the Custom Administration

The communication of the company in relation to the Custom Administration takes place using InstatOnline (web on-line application of Reports sending for Intrastat) (see Fig. 3), or using InstatDesk (off-line application for creation, import and sending Reports for Intrastat).

Intrastat is the statistical system of the goods trade among the Czech Republic and other EU states and it is operated by the Czech Customs Administration in cooperation with the Czech Social Security Administration

Fig. 3: Model communication of the company with Customs Administration of the Czech Republic via InstatOnline



Source: own

The characteristics of the model are:

- Participants: Authorized person from the company, Customs office.
- Communication Channels: Internet, the Communication Infrastructure of the Public Administration (Czech abbrev. KIVS), Portal eJustice.
- Information systems: IS of the company, Portal of the Customs Administration, IS of Data Boxes (Czech abbrev. ISDS).

Advantages of the model are:

- variant InstatOnline: Possibility to make or import data from any PC connected to the Internet. Automatically updated environment (registers, exchange rates, and applications). It is not necessary to use electronic signature.
- variant InstatDesk: Number of imported sentences is not limited. Speed of application is only depended on the used IT. Off-line validation of import data before sending.

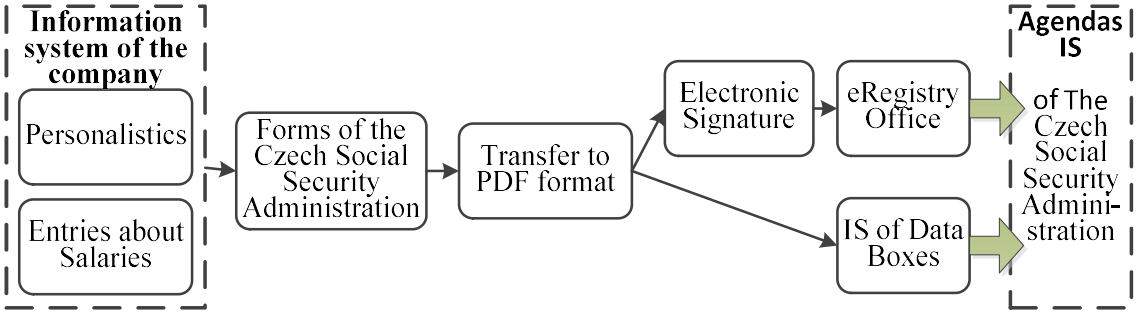
Disadvantages of the model are:

- variant InstatOnline: Speed is depended on the web technology characteristics. At the later days processing causes slower response. Possibility to import only 500 data sentences per month for one reporting unit.
- variant InstatDesk: Application must be installed in up-to-date version. For good run it is necessary to update registers.

3.4 Communication models in relation to the Czech Social Security Administration

The communication of the company in relation to the Czech Social Security Administration (Czech abbrev. ČSSZ) takes place using classical forms (see Fig. 4) or interactive forms at portal 'e-Podání'.

Fig. 4: Model communication with the Czech Social Security Administration when sending classical forms



Source: own

The characteristics of the model are:

- Participants: Authorized person from the company, officer of the Czech Social Security Administration (Czech abbrev. ČSSZ).
- Communication Channels: Internet, the Communication Infrastructure of the Public Administration (Czech abbrev. KIVS).
- Information systems: IS of the company, Portal of ČSSZ, IS of Data Boxes (Czech abbrev. ISDS), either Data Box of the local office ČSSZ or Data Box of 'e-Podání ČSSZ'.

Advantages of the model are:

- variant with classical form: Removal of the necessity to send paper form via post. Message sent via ISDS must not be electronically signed, there is possible to use the signature fiction (§18 law no. 300/2008 of the Documents Collection).
- variant 'e-Podání': Interactive forms with inner checks of completed data. Message sent via ISDS must not be electronically signed, there is possible to use the signature fiction (§18 law no. 300/2008 of the Documents Collection).

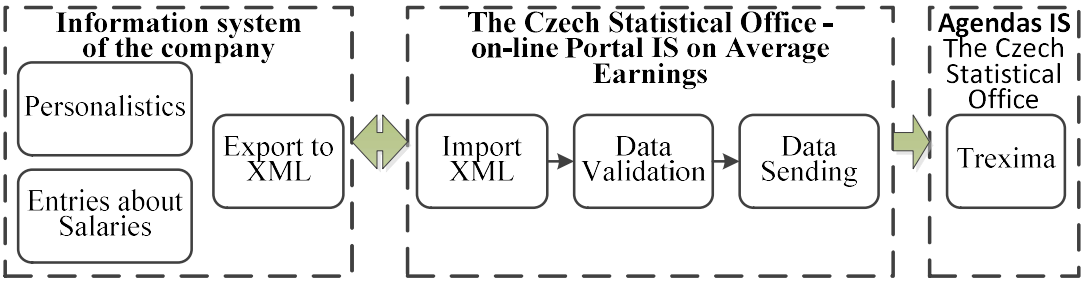
Disadvantages of the model are:

- variant with classical form: Must be precisely checked, there might appear a lot of mistakes. Necessity to convert the document into PDF version. When sending via eRegistry Office must be electronically signed.
- variant 'e-Podání': When using the portal 'e-Podání' it is necessary to sign the document electronically.

3.5 Communication models in relation to the Czech Statistical Office

The communication of the company in relation to the Czech Statistical Office (Czech abbrev. ČSÚ) takes place via on-line portal Information system on Average Earnings (Czech abbrev. ISPV) (see Fig. 5), or via off-line application.

Fig. 5: Model communication with the Czech Statistical Office via on-line Portal IS on Average Earnings



Source: own

The characteristics of the model are:

- Participants: Authorized person from the company, Officer from company TREXINA.
- Communication Channels: Internet, the Communication Infrastructure of the Public Administration (Czech abbrev. KIVS).
- Information systems: IS of the company, Portal Information system on Average Earnings (Czech abbrev. ISPV), IS of Data Boxes (Czech abbrev. ISDS).

Advantages of the model are:

- variant ISPV: Removal of the necessity to send paper forms via post.
- variant Off-line: Removal of the necessity of sending paper forms via post. Possibility of manual data put and correction of already loaded data. Warning system about values which seems to be from the ISPV viewpoint incorrect. Data security while transferring (thanks to certificated encrypted communication protocol https). Possibility to see statistical overviews from acquired data.

Disadvantages of the model are:

- variant ISPV: Necessity of precise check of the form filling-in, there might appear many mistakes. Web application does not enable to edit data.
- variant Off-line: Necessity of update programme for local data input, mainly because of updated forms and built-in controls.

4 Discussion and Conclusion

Development of the eGovernment in the Czech Republic brings new possibilities and opportunities in providing public services. Nevertheless it means some difficulty for the companies out of the public administration – mainly for small and medium-sized businesses, which do not have specialized workers for technological performance of these services, like for fulfilling their legal obligations towards the state using technological tools. Moreover the eGovernment in the Czech Republic, in coordination with the development of the eGovernment in the EU, is the turbulent environment where the services and tools of the eGovernment are changed – either from the view of technological nor the legal. This dynamics also means the difficulty for small and medium-sized businesses. This text is

oriented on the present main legal obligations of the businesses towards the state and evaluates possibilities of fulfilling them and characterizes every communication models. For every model are set Participants, who are involved in the performance of the service. Then there are set needed Communication Channels and also Information Systems, which must cooperate together to perform the service. Every communication model is then evaluated from the view of advantages and disadvantages that is what must be paid attention to by the workers in the small and medium-sized companies and on the other side, which benefits can each model have. Processed communication models map present relation between the businesses and the eGovernment of the Czech Republic.

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DEVELOPING OF PUBLIC ADMINISTRATION'S MODELS FOR CREATING BUSINESS ENVIRONMENT

Tetyana Skrypko

***Abstract**: This article deals processes of administrative system's transformations and business environment. Submitted the essence of concepts administrative reform and public management. We touch basic approaches for public management, his main goals for society, considered American and European schools. The aim of this paper is to highlight the impact of the introduction of reforms measures on the quality of the business environment in Ukraine and Czechia. We used modern methods of public management's estimation for comparative analysis of the level of the business environment of Ukraine, the Czech Republic and other countries. Compare analysis Ukrainian and Czech republic in progress of a business environment shows that public sector has become more efficient and more active than before reforms. Progress during 2010 - 2018 in building permitions, tax rules, procedures for start up business, e-governmental gave real advantages in this countries.*

***Keywords:** public management, public administration, business environment, administrative reforms, indicator, effectiveness.*

***JEL Classification:** M100, K20.*

Introduction

Both the Czech Republic and Ukraine were part of the countries of the socialist camp. Therefore, the system changed with the help of privatization and economic deregulation. New public management (PM) as an ideology is focused on *how* the government performs its tasks, rather than what tasks are. The new public management's market ideas influenced the administrative structure, personnel management and the choice of public policy instruments. For example, public procurement through the e-form – is an internal market for goods (services) previously distributed through bureaucratic hierarchical mechanisms. Involving the private sector for public services has expanded the practice of contracts and partnerships between public and private sectors. The new public management has undoubtedly benefited States and their administrative apparatus: the public sector has become more efficient and more active than before these reforms. Most public sector administrations now better about corruption, services are faster and cause fewer complaints.

1. Problem formulation

Administrative reform in Ukraine can be defined as a multidimensional, multi-vector and permanent phenomenon. The last decade, fundamental changes are observed in the functional load of state administration: defense, foreign policy, and the quality of public life. Therefore, the method of reforming the administrative apparatus, characteristic of the Soviet times, by reducing it, can't today be regarded as effective. The need to form a new system of public administration (PA) as an instrument for overcoming crisis phenomena in Ukraine until recently was underestimated. The current system of state administration remains a combination of the Soviet rudimentary institutional base and quasi-forms of the period of Ukraine's independence.

The concept of administrative reform was approved in 1999 [7]. However, its main goals do not lose relevance:

- development of the PA system, will ensure the emergence of Ukraine as a highly developed, legal, civilized European state with a high standard of living, social stability, culture and democracy;
- assistance in ensuring the sovereignty and independence of Ukraine;
- the formation of a system of public administration that will become close to the needs and demands of people, and the main priority of its activities will be serving the people, national interests.

Modern administrative reform is also aimed at overcoming bureaucracy and corruption. The countries of the former socialist camp in one form or another resorted to reforming their own management systems. At the same time, the range of changes that occurred or occurs during the management reform in the public sector varies from the modification of the civil service to the privatization programs, leaving the system of executive bodies subject to changes.

2. Methods

The methodological basis of the study is a systematic approach, a dialectical method of cognition, fundamental provisions of modern economic theory, concepts of production economics and enterprise management. In the work, such methods of scientific research were used: the method of logical generalization (for systematization of functions and goals of public management), induction and deduction (for researching the business environment), structural analysis (when drawing up a list of environmental assessment indicators), statistical and comparative analysis for searching trends of the business activity), questioning (when identifying problems in the development of Ukrainian business), factor analysis (in determining the priority areas of administrative reform), graphically (for visual presentation of research results).

3. Problem analysis

Theorists and practitioners are actively discussing about directions, mechanisms, tools of reforms [1], [4]. The greatest attention is attached to the political and legal aspect of the content of administrative reform [10], to the improvement of the institutional foundations of the mechanisms of the state apparatus, which results in the socioeconomic development of the country.

The essence of reforms is the approximation of the executive power apparatus to the needs of society, each person and the creation of such a system of PA that would meet the standards of a democratic, rule-of-law state with a socially-oriented market economy. At the same time, restructuring, reorganization are the wrong accents. Since Ukraine has undertaken to reform the legislation and the system as a partner and a future member of the European Union, decisive is Europeanization.

Continuing the scientific polemics, in our opinion, the notion of ‘administrative reform’ seems somewhat outdated, since its subject is the government apparatus. However, the transformation takes place in local government and other parts of public authority. So, rather, it's not about *administrative management*, but about *public administration*. We strive for progress in relations between officials and citizens, therefore, the phrase ‘public power reform’ is more logical in this respect.

In a wide sense, the reforms envisage the development of the state and society as a whole. Public management radically changes the historical paradigm of relations between the state

and the individual. The idea of decentralization of state power while preserving the idea of a law-governed state is the basis for the emergence and development of the theory of the *service* state. In the context of the new model of public management, the state is transformed from an imperiously repressive millstone to a partner of individuals and business representatives and public organizations. By the way, The Constitution of Ukraine [8] laid the fundamental idea of the priority of human rights.

The urgent tasks of the administrative reform remain: ensuring a stable and efficient organization of the executive power system; the organization of a professional, politically neutral and open public service; strengthening the status of a citizen in relations with public administration authorities; ensuring transparency and openness of public administration; creation of a system of capable local self-government; ensuring the control of the PA.

The purpose of our study is explanation of the meaning of the phenomenon and ideology of public business management. The main hypothesis is the assumption that the European Union marked the beginning of huge changes in the system of PA, the functioning, tools and quality of services. It seems that these changes are appropriate and moving in the right direction, but are not yet sufficient to complete all challenges of the hours.

4. Discussion

General goals of PM are:

- a search for rational ways of organizing public management at three levels of governance: national, regional and local;
- decide problems related to the preparation and recruitment of management personnel (determination of the optimal structure of the staffing of state officials, requirements to the mentality and the style of work of professional civil servants, the struggle with bureaucracy and leadership problems, etc.);
- improvement in the functioning of the state administration's mechanism: the development algorithmes and propose tools of decision-making; methods of public administration in crisis and conflict situations, etc.

We depicted the stages of reform (Fig. 1). So, the way of transformations is from the totalitarian model of the device to the democratic one with liberal elements. The problems of the executive power should be decided on the regulation of managerial processes; agreement with the conceptual aspects of the constitutional reform. Administrative reform can't be reduced only to the approval of the optimal structure of government, changes in their subordination, responsibility and the reduction of the administrative apparatus.

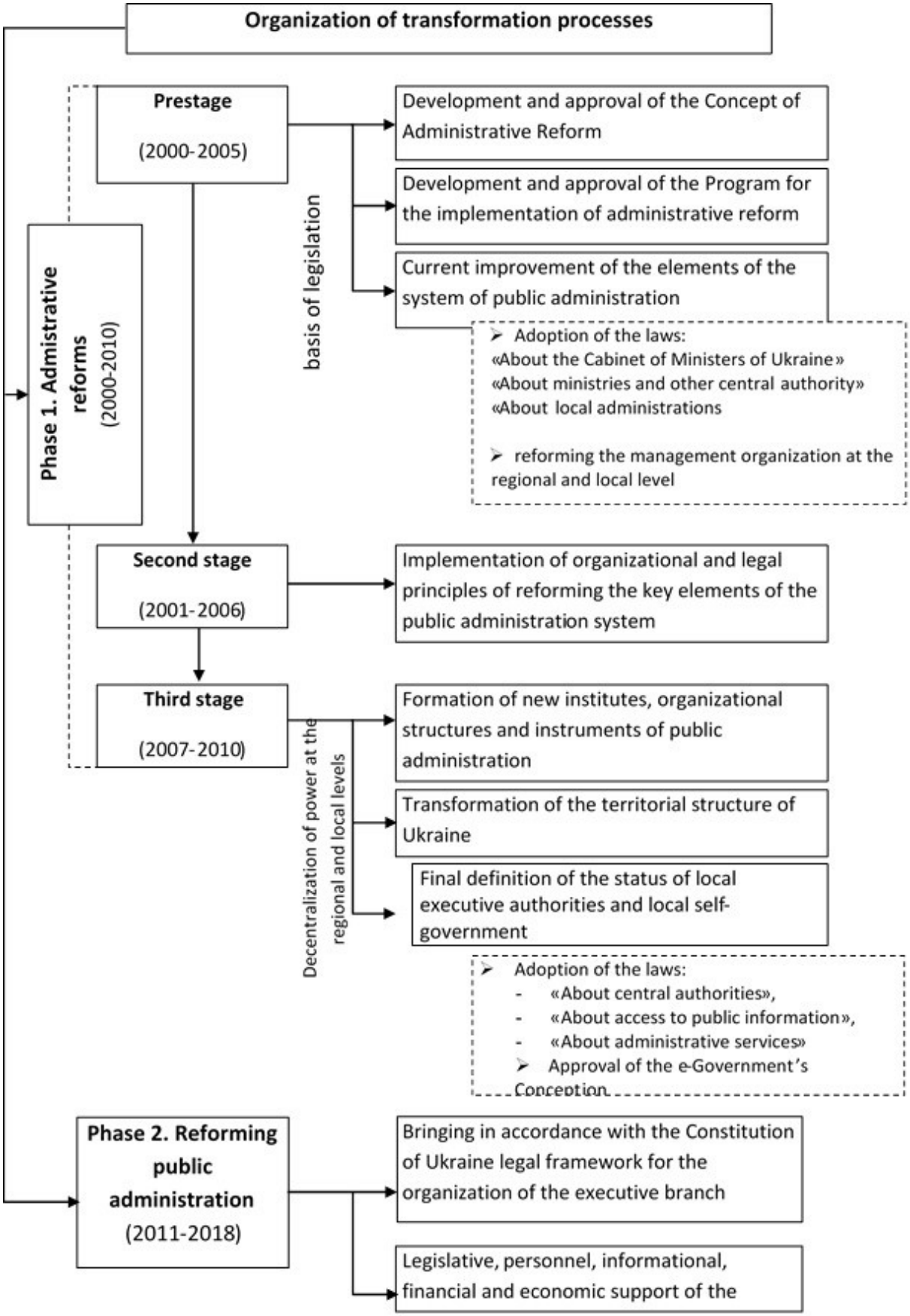
There are two alternative approaches to public administration: North American and Western-European (Tab. 1). If we combine the most important principles of these models, we can formulate the essence of the PM phenomenon. Public administration is the organization for implementation of laws and other normative legal acts of the current legislation, the disposal of resources of national property for the purpose of integrated socio-economic development.

Tab. 1: Approaches to public administration

USA school	European school
The criteria for cost effectiveness and efficiency create the basis for managerial decision-making. Rationality can be determined using quantitative methods such as *cost / benefit analysis*. *Legal norms* provide only a field for decision-making of a public administrator. Priority goals are welfare of business sector in society, because logic's chain is: 'good for business – good for workers – good for people'	An administrator can act differently than a businessman. Highest current tradition is *supremacy of law*. So rationality of social action provided by bringing together a set of rules and facts. State administrators must act within an extremely rigid bureaucratic system. The necessary conditions for decision-making is knowledge of the constitution, laws and administrative processes. Priority in the election officials – candidate should have law degree.
Both approaches are well adapted to the relevant political, economic and social conditions	

Source: own processing

Fig. 1: Reforming the Public Administration System in Ukraine



Source: own processing

The most socially significant tasks of public authorities are: provision and protection of the constitutional order of the country, development of it's as a democratic, social, legal state; ensuring the free development of every person, rights, freedoms and their protection, personal freedom and inviolability; formation of state-legal, economic and political conditions for the activity of state bodies, ensuring their effective activity; providing citizens with the right to participate in the management of public affairs.There are different databases for evaluation PA, for example, data base the comparative study of electoral systems, the *Eurobarometer* (for central, Eastern and single candidate countries), the *European social survey*, etc.

According *The Quality of Government expert survey* according this methodology, basic criteria of governmental activity are: politicization, professionalism, impartiality.

There are worldwide governance indicators. World Bank of Reconstruction and Development monitoring 200 countries.

There are 6 indicators for it:

- Voice and accountability – public opinion, public accountability through independent media, citizen feedback, democratic institutions;
- Political stability and absence of violence – is estimated the chances of overthrowing by a non-constitutional way, incl. terrorist attacks;
- Governmental effectiveness – the effectiveness of public administration through the provision of public services to citizens; independence of decisions from political pressure;
- Regulatory quality – ability to reduce pressure on business and develop the private sector;
- Rule and low – protection of property rights, the performance of contracts, the independence of the police, the judiciary, the level of crime;
- Control of corruption: using official status for personal gain, including domestic, political-administrative level, 'state capture' by the elite and individuals.

International country risk guide (ICRG) have 22 variables in 3 main categories: *political* (stability of public administration, socio-economic conditions of the state, investment profile, existence of internal conflicts, level of corruption, military power in politics, religious and ethnic tensions, law and order, democratic responsibility, quality of bureaucracy; *economical* (economic risk assessment index, GDP per capita in dollars per the year, real GDP per the year, inflation per the year); *financial* (index of financial risks includes external debt in dollars, and in% to GDP, stability of the exchange rate) [9].

At the same time, we are interested in the impact of PM transformations on the business climate. The *Doing Business* methodology is designed to be an easily replicable way to benchmark specific aspects of business regulation [2]. The indicators refer to a specific type of business, generally a local limited liability company operating in the largest business city. Because standard assumptions are used in the data collection, comparisons and benchmarks are valid across economies. The data not only highlight the extent of obstacles to doing business; they also help identify the source of those obstacles, supporting policy makers in designing regulatory reform.

Now, based on the DB reports for 2016 - 2018, we will make a comparative analysis of the progress of the business environment through the transformation of PM's of Ukraine, the Czech Republic, Poland and other countries (Tab. 2).

Comparing our ranking with the closest neighbors, we see that the best situation in Poland, and the fastest reforms in Russia.

Tab. 2: Dynamics of ranks for business conditions

Country	2018	2017	2016	2018/2016
Poland	27	24	25	-2
Czech Republic	30	27	36	+6
Russia	35	40	51	+16
Ukraine	76	80	83	+7

Source: [2]

For policy makers, knowing where their economy stands in the aggregate ranking on the ease of doing business is useful:

Tab. 3: How Ukraine and comparator economies 2018 rank on the ease of doing business

Indicators for	Ukraine's rank	Czech Rep. rank	Best performer globally
Starting a Business	52	81	1 (New Zealand)
Procedure – (number)	6	8	1 (New Zealand)
Time – (days)	6.5	9	0.5 (New Zealand)
Cost – (% of income per capita)	0.8	1	0.0 (Slovenia)
Dealing with Construction Permits	35 (+105!)	127 (+3)	1 (New Zealand)
Getting Electricity	128 (+2)	15 (-2)	1 (Korea, Rep.)
Registering Property	64 (-1)	32 (-1)	1 (New Zealand)
Getting Credit	29 (-9)	42 (-10)	1 (New Zealand)
Paying Taxes	43 (+41!)	53	1 (Unit. Arab. Emirates)
Trading across Borders	119 (-4)	1	1 (10 Economies)

Source: [2]

There are significant differences between Ukraine and the EU members: income category. Ukraine belongs to lower middle income sector, GNI per capita $2.31and reduce year by year. However, there is progress and some positions are better than in the Czech Republic. During 2010 - 2017 Ukraine eased business start-up by substantially reducing the minimum capital requirement, requirement to have incorporation documents notarized, for registration with the statistics authority and by eliminating the cost for value added tax registration etc. Tangible progress on the indicator the procedure for obtaining building permits has been simplified considerably during the year, which made it possible to rise immediately to 105 positions. The improvement of the rating of tax payments is explained by deduction from the 'tax shadow'. Among the current problems and significant threats to economic security business, inter alia, identified corruption aimed at distorting competition in the market, unfair competition in the absence of state mechanisms contain insecurity and effectively protect legitimate business in the legal field. According to the indicator *Trading across Borders*, Czech Republic, Poland, Italy, Hungary better than Germany.

Labor market regulation (Tab. 4) at 2012 increased the maximum duration of fixed term contracts and reduced the severance pay applicable in cases of redundancy dismissals of employees with one year of service in Czech Republic. The Czech Republic abolished the minimum wage for young workers at 2013.

Tab. 4: Labor market regulation

Indicator	Ukraine	Czech Rep.
Maximum number of working days per week	5.5	6
Premium for night work (% of hourly pay)	20	10
Premium for work on weekly rest day (% of hourly pay)	100	10
Premium for overtime work (% of hourly pay)	100	25
Paid annual leave (average for workers with 1, 5 and 10 years of tenure, in working days)	18	20

Source: [2]

State organizations developed measures to further strengthen Ukraine's position on the indicators of the rating of business conditions. In particular, the need to notarize many documents was canceled, the procedure for opening a business by subjects of private law without the use of seals was simplified. The central executive bodies conduct joint work with experts from the International Finance Corporation, the European Business Association and the American Chamber of Commerce and Industry in Ukraine. As a result, according to the index of global competitiveness, Ukraine climbed a few positions. The improvement was due to the high average level of education of the population and significant market capacity.

However, despite the implementation of economic reforms, there remain certain institutional, legal and infrastructural problems that do not allow Ukraine to take the leading positions in world ratings. The problems of stabilizing the financial sector and innovative development remain unresolved. At the same time, it is formally believed that the infrastructure of small business support is actively developing in Ukraine to provide financial, material, technical, information, scientific and technological, consultative, marketing, personnel and educational support to business entities. In particular, there are many business centers, business incubators, technology parks, leasing centers, investment and innovation funds and companies, information and consultative institutions.

For example, in the Lviv region, 16 business centers provide consultative and financial assistance to small businesses. In Lviv, a joint business service center of Nestle, which is the world's third in-house business service center as part of the international business services Nestle division, has been created. The Center carries out a number of financial operations, and also serves business companies in more than 20 other countries.

In economically developed countries, the intellectualization of the economy depends on the volume of business activity. Thus, the implementation of an effective state policy aimed at increasing the innovative activity of enterprises will positively affect the strengthening of scientific, technological, production and foreign economic potential. Achieving these goals requires the creation of a favorable investment environment in Ukraine, which is institutional, organizational, economic, and psychological support, as well as the necessary investment support. Therefore, it is important to determine the purpose, operational objectives, directions, mechanisms and means of PA.

Conclusion

Despite formal progress, Ukraine continues to catastrophically lag behind in economic development, proving an unfavorable business environment. The forecast for the world economy growth for 2018 is about 4%, and the countries belonging to our group of emerging markets *'emerging markets'* more than 5% [6].

The need to ensure such high growth rates is objectively necessary for everyone, but above all for poor countries. The fight against poverty is possible only if the economic growth

rates are exceeded, exceeding the threshold of 5% per annum. Unfortunately, the Ukrainian realities are such that the projected growth of 3%, which the authorities are guided by, is completely inadequate.

The market ideas of the new PM have affected the administrative structure, personnel management and public policy instruments. Thus, the bureaucratic hierarchical mechanism of state procurement is replaced by e-forms. Involvement of the private sector for public services has expanded the practice of contracts and partnerships between public and private sectors. Transformations benefit the states and their administrative apparatus: the public sector has become more efficient and more active than to these reforms. However, even more problems are not solved. In the future, remain the tasks of the PM: the search for rational ways of organizing public administration at three levels: national, regional and local; the definition of the optimal structure of full-time employees, requirements for the mentality and style of work of managers, the fight against bureaucracy and corruption; improving the functioning of the mechanism of public administration, in particular, the development of algorithms and decision-making tools, methods of public administration in crisis and conflict situations. There is a close relationship between the provision of free enterprise, enabling economic and legal environment business, social and economic growth of the state and the formation of the defining components of the security of the national economy.

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THE USE OF PERFORMANCE MEASUREMENT TECHNIQUES IN LOCAL GOVERNMENT

Michaela Stříteská, Lyndon Nii Adjiri Sackey

Abstract: *In the last 20 years, the academic and practitioner attention on performance measurement and management in public sector has dramatically increased. There is an increasing evidence of the positive impact of performance management on public sector organisations. However, the full potential of this phenomenon is not yet widely used and further research is still needed. Hence, the main focus of this paper is on how diverse performance management techniques are used in local government. The analysis using qualitative research method is performed in English and Czech local government. Several significant findings have emerged from the analysis. Performance management frameworks are strongly focused to manage, motivate and persuade employee to share the same vision, and to help to implement a change in English local government. On the other hand, there are no traces of any systematic performance measurement and management in Czech local government. Even though Czech municipalities use some performance measures the main challenge is how to use and manage them in an effective way.*

Keywords: *Performance management, Performance measurement, Performance management techniques, Local government, Czech Republic, England.*

JEL Classification: *H11, H83.*

Introduction

Over the few years' performance management has become a key revolutionise trend in public sector around the world. Scholars describe this phenomenon varyingly as 'performance movement' (Talbot, 2005). 'the age of performance management' (Bouchaert, Halligan, 2008), 'an age of governance by performance management' (Moynihan, 2002). For practitioners, performance management mostly comes in the form of specific tool used to include performance information into management and policy system, such as target systems, performance contracts, performance indicators, controlling, balanced scorecards, at an individual level, as target agreements, performance appraisals and performance-related pay.

Over the past years, it has been observed that there is a booming interest in research on the practical importance and use of performance management and especially its effect on management and the question how and why 'management matters' (Boyne et. al, 2006). There is increasing evidence of the positive impact of performance management on public sector (Van Dooren et. al, 2010).

Recent practical studies have found that the application of performance measurement is rising in both state and local governments in the United States, (Breul, Kamensky, 2008). Indeed, state governments 'have interestingly embraced the conception of managing for results' (Moynihan, 2002), adapting policy ideas transferred from the United Kingdom, New Zealand, and Australia. However, important developments in performance and results-based accountability have not been fully achieved, and research is still needed to identify the key factors of successful design, implementation, and use of performance measurement systems (Sanger, 2008). As Marr (2009) points out many public sector organizations have created department who shed blood, sweat and tears to put performance management systems in

place, the result is often just and increased administrative measurement burden and is very rarely producing new management insights, learning or performance improvements.

This paper is organised as follows. In the next section, the theoretical background of performance measurement and management in public sector is presented. Next part provides the characteristics of research methodology and methods used. Then the obtained results are analysed, discussed and compared. In final part the conclusions are formulated.

1 Statement of a problem

The performance measurement is the tool that describes the organization's development because it is not practicable for any organization to act effectively without having its performance measured. The importance of performance measurement in the public sector organizations was improved even more by new public management that has the purpose to adjust the performance measurement methods applied in private organizations for the organizations in public sector so that the performance could be advanced to improve to serve the needs of users' more adequately (Diefenbach, 2009).

The theory and practice of performance measurement manifest that it is a multifaceted process and that the use of performance measurement systems in public sector is specific because all the roles of public sector organizations are concentrated to the satisfaction of public interests, i.e. it is more difficult to administer the performance measurement methods for measurement of public sector organizations, because such organizations are more process- and not result-oriented (Behn, 2003).

In public sector organizations, main indicators are equal of collected experience (which is usually replaced by seniority) and amassed skills and knowledge. Civil servants are anticipated to develop continually their skills and knowledge to better match to real line job requirements. Professionalism (in this case - knowledge of the gratified of the job), creativity, organizational and management skills are valued as most important among performance measurement indicators. Private companies tend to measure both tangible and intangible fields of action. More mainly, targeting and performance-based satisfying are probable to be more progressive in the private than the public sector, because of tougher and more positive exterior pressures and of financial enticements (Reichard, Helden, 2016).

Government as owner shed ownership rights and consequently departing interests, lack of goal clearness, but in the private sector limited or multiple owners with mainly financial interests, goal precision. The public sector is controlled by numerous stakeholders at different layers, feeble incentives whiles the private sector is controlled by the market and by shareholders, sturdy incentives.

Performance measurement in the public sector is indeed a necessity. Performance measurement has been introduced in many public organizations to ensure transparency of public decisions and the use of public funds as well as to boost performance. But in practice, this concept strikes many obstacles: defining performance in the public sector, identifying suitable performance indicators, implementation of a performance management system. A challenge, still present, is to identify the most suitable methods for monitoring and measuring performance, so do not give rise to speculative behaviour among employees and managers (Mihaiu, 2014).

Hence, the main aim of this paper is to analyse whether and how diverse performance management techniques are used in local government.

2 Methods

The research will focus on performance management techniques (hereinafter PMT) used in local governments, because literature review proves that it is one of the public sectors at which performance management techniques application is rising and this paper seeks to find out how diverse it has been used in management practice. The second reason is that research studies have pointed to positive outcomes from BSC and other PMT used in local government organizations: clarifying strategic goals; integrating goals across departments; setting performance measures within a more strategic context; reduction measures to those most meaningful and manageable; supplementing financial measures of past performance with operational measures that drive future performance; and providing a link between the organisation's mission and strategy (Niven, 2006).

There are several performance management techniques that can be used in the public sector. However, based on a literature review, the main analysis will be centred on the mostly used: Key Performance Indicators, Performance Appraisal, Balanced scorecard, Management by Objective, and Benchmarking. Marr (2014) identify top 10 Performance Management Techniques used in the organizations, whether commercial or not-for-profit and above-mentioned PMT have been placed in the top positions.

Based on the main aim and the theoretical review, the following research objectives will be addressed within this study:

1. To find out what kinds of PMT are used in local government.
2. How are these PMT being implemented and used in management practice.
3. The benefits of the PMT used in local government.

Qualitative research method will be applied in this research study because it allows the exploration, and understanding of complex issues. Case study analysis has been selected as appropriate research method. Case study helps explain both the process and outcome of circumstances through complete observation, reform, and analysis of the cases under investigation (Tellis, 1997).

The case study analysis is performed by using document and content analyses of published and unpublished articles, books, strategic plans of selected local government authorities, and other performance management documents. The following is assessed when these documents are being studied:

1. The focus of the PMT, this will assess whether the PMT was implemented in conjunction with the strategy.
2. The objective of the PMT in the organization: to established whether the PMT is for leadership strategic or operational.
3. The benefit of the PMT to Human resource: staff management, staff training and development or learning and improvement perspective.

Czech Republic and United Kingdom (UK) have been selected as the countries for the analyses to be conducted. In the Czech Republic this area has been developing relatively rapidly since 2000, when the Quality Council of the Czech Republic was established and the National Quality Assistance Program was adopted (Kostelecký, Patočková, 2006). The UK was selected because it is one of the countries that Performance management has been radically applied (Pollitt, Bouckaert, 2000). Furthermore, UK is credited as the first country where the term NPM was introduced to describe approaches that were developed during the 1980s as a part of an effort to make the public service more ‘businesslike’ and to improve its efficiency by using private sector management models (Hood, Jackson,1991). In view, of the

status of UK in terms of political structure that is being made up of four countries namely: England, North Ireland, Wales and Scotland, for the purpose of this research work, England is used as the country for the assessment of the performance management techniques used in local government.

The metropolitans with large population size were chosen regarding a recent survey carried out in Netherlands which proves that about seventy percent (70%) of the Municipalities in Netherlands applied Performance Management Instrument. This surveyed further indicated that the larger the municipality the higher the average the usage of these Instruments (Moret, Ernst &Young, 1997). The case study analysis was performed in twenty Metropolitan Borough in England (Birmingham, Liverpool, Sheffield, Newcastle, Leeds, Coventry, Bradford, Manchester, Kirklees, Wakefield, Wigan, Wirral, Sandwell, Dudley, Doncaster, Stockport, Walsall, Sunderland, Sefton, and Rotherham) and twenty biggest municipalities measured by number of inhabitants in the Czech Republic (Praha, Brno, Ostrava, Plzeň, Liberec, Olomouc, Ústí nad Laben, České Budějovice, Hradec Králové, Parudbice, Zlín, Havířov, Kladno, Most, Opava, Frýdek-Místek, Karviná, Jihlava, Karlovy Vary, Teplice).

During the analysis over seventy (70) documents were review to ascertain the necessary information on the usage of PMT in Czech and English local government authorities. To verify the information obtained from the documents analysis, a short questionnaire was sent to selected local governments. Unfortunately, only one English municipality responded. The respond rate for Czech municipalities was higher, here it was possible to get half of the completed questionnaires that fully confirmed the results of the documents analysis and refined the benefits of PMTs used.

3 Problem solving

The analyses indicate that performance management techniques are widely used in the metropolitan boroughs of the council of England, because all the twenty metropolitan boroughs selected have a performance management framework created. All municipal boroughs analysed use twelve different performance management techniques to improve performance management, namely: System Application Product(SAP) Business Objects Strategy Management, Best Value Performance Indicators(BVPIs), Key Performance Indicators (KPIs), Benchmarking, Plan, Do, Check and Act (PDCA), Dashboard, Join Health and Wellbeing Strategy (JHWS), Kirkless Economic Strategy (KES), Corporate Improvement Priorities (CPI) and Business Planning Cycles (BPC), Quality Indicators (QIs), Corporate Scorecard (CS) and Service Improvement Plan (SIP), Performance Appraisal (PA) and Continuous Improvement (CI). Most of the names of the techniques vary from the traditional names that are usually used in PMTs, but have the same principles. However, this occurs in most municipal boroughs because they want to tailor the performance management techniques to suit their conditions. A specific example is the Kirkless Metropolitan Borough using a technique named Kirkless Economic Strategy (KES) and Join Health and Wellbeing Strategy (JHWS). Also, it can be observed that most of the techniques are selected according to the strategy of the council.

The most used PMT by selected metropolitan boroughs is the PDCA, more than half of the boroughs used it as a technique in performance management. The KPIs is the next most used technique, followed by dashboard and scorecard. Despite the fact that benchmarking has been established in the UK as an externally mandated, audit-driven performance management tool deployed by national government to pursue local and national policy objectives (Ferry et al., 2015), the analysis revealed that only 15% of the boroughs use it. Performance Appraisal was only use by Walsall Metropolitan borough as its performance techniques and it was combined with another technique. The analyses indicate that more than sixty percent (60%) of

the techniques used by the selected boroughs fall with the top ten most used performance management techniques as reported by (Marr, 2014). It was also realised that 30% of the boroughs combined two or more PMTs in the measurement of performance.

The situation is completely different in Czech local government. The analysed municipalities do not use any framework for systematic performance measurement and management. However, they use a number of sub-tools to measure and evaluate the performance. The most widely used PMT is benchmarking, which is used by 90% of analysed municipalities. The benchmarking is especially used to compare the performance of individual operational and financial agendas as well as selected public services. The second most commonly used technique to measure performance is a measurement and evaluation of strategic goals indicators (75%). Deliberately we are not talking about KPIs at this point, because the indicators used do not meet the basic KPI characteristics (Badawy et al., 2016). The strategic goals indicators used are mostly control measures that reflect past performance and do not adequately reflect 'soft issues' that determine future performance. In most cases, the leading measures are completely missing. Moreover the used indicators are not broken down and set as targets for achievement by departments and individuals (FinPa New Media, 2009). The questionnaire survey also showed that local government managers themselves do not see these indicators as KPIs. None of them indicated the use of KPI in their organization. The rest of the PMTs were used to a very limited extent, Balanced Scorecard in 3 municipalities, MBO in 2 municipalities and Performance appraisal in one.

Even though the UK Government accepted the idea of performance management framework to be used by the local government in 2000, (Sharman report, 2001), from the analyses only 30% of the metropolitan boroughs have been able to fully implement the framework and the rest of the 70% are in the process of framework implementation. Even those who have been able to fully implement the framework are still reviewing and updating some of their performance indicators as the needs and demands of the residents are dynamic. Furthermore, all the boroughs analysed have their corporate plan, strategic plan, and objectives link to the performance management framework, which keeps the completion always extended.

The implementation of the PMTs within the boroughs analysed vary from one borough to the other, depending on their organizational structure and the strategy of the borough. But generally, they all have performance management committees which monitor and measure the performance of the techniques against the indicators set to be measured and mostly these committees are usually members from management and staff from various departments.

It was observed from the analyses that all the boroughs' PMTs were geared towards leadership strategy; to manage, motivate and persuade of the staff to share the same vision, and to help implement change or create organizational structure within a organisation. It can be observed from the boroughs that most of the monitoring and measurement was done by executive management team and heads of departments, which is an effective way of establishing a vision and mission of an organization. Also, it can be observed that, the various applications of the techniques were operational because the various units of the boroughs are linked to each other through the regular reports and reviews of performance against the performance indicators. This however helped the various units to know whether they are working towards a common goal or whether there are some lapses emanating from any department.

On the basis of analysis carried out, it can be stated that the benchmarking is fully implemented in Czech municipalities. The benchmarking method is implemented in most municipalities under the so-called Benchmarking Initiative 2005. This initiative is based on the voluntary cooperation of municipalities, which form together the methodology of data and

indicators for mutual comparison in many areas. Currently, results are compared in 53 areas of independent and delegated competencies of operational agenda, and nearly 400 ratios are evaluated in a computer online database. The implementation of other PMTs is at the beginning.

According to Pacheco (2009), measuring performance in the public sector has added to the success of multiple objectives, including the transparency of costs and results, improvement of service quality, employee motivation, one of the key pillars of the new governance. The analyses performed in English local government confirm that budget and results have become transparent because of the monthly, quarterly, half yearly and yearly reports submitted to the various review committees or management teams. The use of PMTs also improved the participation of residents in the decision-making process, because they were involved in the stakeholder's meetings where their views on how the boroughs can improve their services are discussed. Simultaneously only a few of the boroughs' PMTs were used primarily for reduction of financial demands or cost, but rather to improvement on their services to the residents. It was also identified that the implementation of the performance management system improved the effectiveness and efficiency in discharge of duties of the public servants, because targets were set through the performance indicators to departments and this is intend monitored through regular reports and reviews.

The most stressed benefit of PMTs used in Czech local government are reduction of financial demands or costs, followed by improvement in service provision to residents. Only three municipalities mentioned increase of authority transparency and accountability and the improvement of employee's skills and abilities was mentioned by two of them.

4 Discussion

The most fundamental difference which results from the analysis carried out between the English and Czech local governments is that in fact all selected English municipalities have a performance management and measurement framework developed. These frameworks are created through a variety of performance management techniques that are tailored to the specific features of individual metropolitan boroughs. The most widely-used PMT is PDCA cycle, which is very simple and universally usable and the second most used are Key Performance Indicators. This result is consistent with the findings of other studies that found KPIs as the most widely used tool for managing performance, with a usage rate of about 75% in a recent global survey of over 3000 organisations (Keller, 2009).

It was observed that 30% of the metropolitan Boroughs have been able to fully implement the framework and the rest of the 70% are still in different stages of implementation. The reason for this could be that the performance management process needs to be continually improved as well as strategic performance indicators have to be reviewed and updated as the respond for the dynamic environment. Furthermore, all the municipal boroughs assessed have their corporate plan, strategic plan, and objectives link to the performance management framework, which provides a comprehensive view of performance.

The analysis also revealed that all the boroughs' performance management frameworks are strongly focused to manage, motivate and persuade employee to share the same vision, and to help to implement a change. Various units of the boroughs are linked to each other through the regular reports and reviews of performance based on the performance indicators. In all selected municipal boroughs there are performance management committees from managers and staff of various departments established which monitor performance and review the strategy and performance indicators.

In contrast, the benchmarking method and the strategic goals indicators are used for performance measurement in Czech municipalities. The mentioned tools are used separately.

The strategic development of territory is managed on the basis of strategic goals indicators evaluation and the benchmarking is used to improve operational performance of individual agendas. Any system of performance measurement and management is completely absent in Czech local government.

The above mentioned results also caused partly different perceptions of the benefits of PMTs use. The English municipal boroughs identify more benefits including productivity improvement. The Czech municipalities fully agree on the benefits and see them mainly in reduction of financial requirements and service improvements.

Interestingly, the BSC method is not used in English or Czech local government, despite the fact that a number of studies in the public sector have reported on the effectiveness of the Balanced scorecard. Only 10% of local governments selected use it, whereas in Czech municipalities the implementation is in the beginning. Chan's (2004) survey also revealed limited use of the BSC in municipal organisations' decision-making processes, whereas public sector managers in Hoque and Adams' (2011) study considered it as useful. According to Wisniewski at el. (2004) the reason of low BSC use might be due to poor information systems, poor measures, and problems with defining the customers.

Conclusion

Several significant findings have emerged from the analysis. Recent review of public management recognized performance measurement as a trend transforming government because of its potential to improve government performance and accountability (Abramos et al., 2006). Moreover performance management has the ability to strengthen citizens' trust in the government by making its activities and efforts more transparent and accountable. This also indicates the results of the analysis carried out in the English local government.

Unfortunately, the situation in the Czech local government is quite different. Here are no traces of any systematic performance measurement and management. In addition, some local government managers' responses have shown that performance measurement very often links only to an individual level, i.e. the performance of employees. Even though selected municipalities use some performance measures the main challenge is how to use and manage them in an effective way.

The direction of future research should be focused on answering this question. In this context, it would be valuable to propose a conceptual performance management framework suitable to support Czech local government in developing and implementing an effective performance measurement and management system.

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PUBLIC ADMINISTRATION AND PROBLEMATICS OF BROWNFIELD IN THE CZECH REPUBLIC

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Abstract: *This paper is based on the characterization of the role of public administration regarding the problem solving of abounded and unused objects and areas known as brownfields, especially in relation to its regeneration. The regeneration of these brownfields has been recognized as a key instrument in the sustainable land management. The conversion of brownfields is more effective and should be more acceptable to the public than the utilization of free developable land because of scarce a more expensive resource, especially in densely populated areas. We must also not forget the public interest in resolving the existence of brownfields perceived through SMART growth and urban sprawl and the process of suburbanization. That is why it is necessary to engage the public administration in cases in which the private sector is failing. This paper summarizes some of the selected tools of the public administration for problem solving of brownfield, a particularly defines the public institutions engaging in brownfields regeneration as well. Standard secondary data are used and combined with data from primary research carried out in relation between municipalities of the Moravian-Silesian Region and its activities in solving problems related to brownfields.*

Keywords: *Brownfield, public administration, public sector, regeneration.*

JEL Classification*: O18, R11, R51, R58.*

Introduction

The problem of brownfields has come to the forefront in recent years due to significant socio-economic changes based on economic growth, raising the standard of living and identifying entities with social and environmental responsibility to their surroundings. Social responsibility applies to all stakeholders, i.e. business and non-business entities intervening in the common living space (Horváth, et al., 2017). These general manifestations of socio-economic changes are reflected in the changing role of sub-state territorial units and actors operating in lower territorial units (Sucháček, 2011). One of these is also the fact that local and regional development challenges and competences are shifted to local and regional institutions and other stakeholders who become active agents of development activities and strategies that particularly reflect the endogenous mobilization of internal resources. According to North (2005), the question is not whether local or regional self-government supports local or regional economies, but rather what role they should play in the process. Referring to Armstrong and Taylor (2001), it is still necessary to add that local or regional initiatives are a major complement to the activities of the state that covers all the activities in regional development. Applied to brownfields, it is our concern to investigate the voluntary or forced activation of public administration institutions at both national and regional levels.

Brownfieldy is perceived as an important, specific, element of spatial development and spatial arrangement of the cultural and natural environment as part of a modern approach and in the context of economic development and contemporary dynamic improvement of the quality of life. From this point of view, the brownfields and areas affected by them should be the subject of an active interest of public and state administration representatives who, through their activities or interaction with other entities, can use the potential of brownfields

to the fullest extent possible. The submitted contribution focuses precisely on defining the role of public administration and public institutions in relation to brownfields.

Brebbia et al. (2006: 40) refers to brownfield: 'land or buildings previously used and which are now abandoned or only partly used. They may be empty, dilapidated or contaminated. This is why brownfields cannot be immediately exploited without any intervention'. Brownfields thus represent a significant environmental and social problem, and their solution reflects the socio-cultural maturity of a given level of government (Greenberg et al., 2000; De Sousa, 2003; Thornton et al., 2007 or Williams and Dair, 2007). The emergence of brownfields is mainly due to economic and social factors having anchors in sectoral changes in economic activities and always with reference to the given territory and the analysed object or phenomenon. The effects of brownfields with the nature of negative externalities are manifested in the social sphere (socio-pathological phenomena or unemployment - Kunc et al., 2014 or Turečková et al., 2017a), economic (e.g. the impact on real estate prices around Sun, Jones, 2013; Turečková et al., 2017b), in the field of environmental (associated with possible contamination and ecological burden of built or neighbouring areas neighbouring to the brownfield) or in urban and organizational area (Frantál et al., 2013). The above is also reflected in the scope and structure of interventions of public administration and self-government institutions to solve the problems arising from the existence of brownfields. According to the Brownfield Localization Study (CzechInvest, 2008), there were 2 355 brownfields in the Czech Republic in 2005 - 2007 with a total area of 10 326 hectares. Qualified estimates, however, indicate the total number of brownfields around 12 000, with an area of more than 38 000 hectares, and the number of brownfields declining slightly since the 1990s (Rydvalová, Žižka, 2006). It can be said that there is no municipality in the Czech Republic that would have at least one brownfield in its cadastral area. Due to the fact that, based on research in the municipalities of the Moravian-Silesian Region, it is clear that at least 80% of citizens of brownfields are embarrass, so that is why that it is of public interest to solve the problems of brownfields (Turečková et al., 2017a).

1 Formulation of Problem and Methodology

Brownfields are a problem for all municipalities and cities because they are an integral part of them. Besides the spatial connection, the brownfields are connected to the municipalities also functionally and visually. Dilapidated brownfields, according to Kadeřábková, Piecha (2009) in various ways, reduce the attractiveness of the village (they are associated with the image of the decline of the territory), which is transformed to a different degree into its competitive advantage. From an urban point of view, unused areas can be understood as limitations of available resources in a municipality with a direct link to the public budget. The re-use of these abandoned sites or areas improves the quality of life of all subjects by reducing crime and the occurrence of socio-pathological phenomena, improving the local environment, improving land and territory, increasing the perceived value of surrounding properties, and increasing the attractiveness of entrepreneurs (Hollaer et al., 2010).

Interventions to deal with brownfields must also respect the different locations of brownfields in different parts of the community, in the so-called concentric zones (Park, Burgess, 1925). In the literature, there is a consensus that brownfields represent barriers in the contemporary city structure that limit territory development (Raco, Henderson, 2006). In the context of brownfield regeneration, it is possible to assume that, in the central - the most attractive parts of the city, re-use of brownfields will be directed to support small business and housing. This hypothesis corresponds to the current urban trends (Buzar et al., 2007). Beware, however, this intention is not always successful, see the problem of extinction of the city centre. Brownfields from the district of the centre, which were integrated into its background during the dynamic development of cities, have a considerable variation in terms of, for

example, medium-sized business units or civic amenities (Krzysztofik et al., 2012), while abandoned complexes the peripheries of the village are suitable for large industrial buildings and warehouses. If the brownfields are not desirable or possible (and there is no more suitable, more efficient alternative), it is possible to demolish the brownfield itself, to compare the area and to decontaminate the soil, or to graze it, and to leave the free space without a specific purpose (Johnson, Glover, Stewart, 2009; De Sousa, 2000).

The argument of undesirable effects associated with suburbanization and urban sprawl also speaks for reuse of abandoned areas. Both phenomena lead to long-term changes in the use of the landscape, i.e. mainly to the exhibition and subsequent use of new objects and technical infrastructure. Brownfields remain in the inner cities, while development in the suburban area takes place on a green field. The diffusive metropolitan development contributes to the increase in the shuttle distance, the total time spent on commuting and its length, and it is reflected in increasing individualisation, loss of social cohesion, weakening of social capital, ..., dislike of citizens to participate in the management of public affairs, as is the case in the case of socially and culturally homogeneous suburban communities. Significant social conflicts are not solved by local governments, but they are an inter-municipalities issue, but they can show competitive relationships (see, for example, Putman, 2000; Oliver, 2001; Jackson, 2002; Sýkora, 2003).

From the methodological point of view, the paper is based on the search of text sources for solved problems. In the context of the chosen objective of the article, it is not possible to define the role of public administration specifically because the possible intervention by the public administration is to a large extent completely individual and is in given brownfield always unique. Nonetheless, general public rights procedures to address the problems associated with the existence of brownfields can be described (see next chapter). The contribution also mentions the findings from the primary research conducted within the project SGS/21/2016. However, these research findings will be relevant to the topic and content of the contribution.

2 The Role of Public Administration in Context of Solving Problem of Brownfieldy

There is no doubt that the issue of brownfields needs to be addressed at supranational, national or local level and carries with them the high costs (organizational, financial, legislative, procedural, etc.) that governments have to face. The task of the different levels of government is to create the appropriate tools and conditions through which the problems associated with brownfields can be addressed. For more effective management of brownfields, it is necessary to involve the private sector and the non-profit sector outside the public sector, and to take full advantage of the benefits of mutual cooperation within the Public Private Partnership.The actors involved in the brownfield rebuilding process are large. Their possible classification includes two axes: (1) vertical and (2) horizontal. In the horizontal division we mean actors ranked from the highest authority to the lowest (EU - state - region - municipality - citizen?) Or vice versa, while the horizontal axis represents activities between specialized departments, disciplines or departments (Dvořáková et al., 2016).

The brownfields area and their solutions fall under the highest governmental level in the Czech Republic under the aegis of the Government, including the Parliament, namely the Ministry of the Environment and the Ministry for Regional Development (Program for the Support of the Revitalization of Territory and the Demolition of Buildings in Socially Excluded Locations sub-program 2018). However, the issue also concerns the Ministry of Industry and Trade (e.g. the Regeneration Program and the Business Utilization of Brownfields), the Ministry of the Environment (Program Environment and Priority for Removing Old Ecological Burdens), the Ministry of Agriculture (Rural Development

Program) and the Ministry of Culture Program Support for the Restoration of Cultural Monuments) and, as far as funding is concerned, the Ministry of Finance. There is no doubt that it also falls within the scope of other ministries and government agencies and institutions (CzechInvest, Centre for Regional Development, etc.). CzechInvest keeps a National Brownfield Database and participates in the preparation of the National Brownfield Regeneration Strategy, whose main goal is to reduce the number of brownfields in the Czech Republic, especially in the context of improving the quality of the urban environment and increasing the competitiveness of municipalities (National Brownfield Regeneration Strategy, 2008).

Ministerial competencies include the joint elaboration of a national brownfield regeneration strategy, anchoring brownfields into Czech legislation and defining the basic tools for the whole process of regeneration and revitalization of brownfields (Dvořáková et al., 2016). In the Czech Republic, we have a total of five basic planning and strategic documents related to brownfields: (1) Sustainable Development Strategy of the Czech Republic, (2) Regional Development Strategy of the Czech Republic, (3) Economic Growth Strategy of the Czech Republic, (4) State Environmental Policy of the Czech Republic and (5) Spatial Development Policy of the Czech Republic. (CzechInvest, 2018). We should add the strategic framework Czech Republic 2030 to the above.

The European Union then contributes to arrangement brownfield problems through its instruments, in particular by funding their regeneration from individual funds. The European Union definitely supports investment in old sites instead of new greenfield buildings. It appreciates the protection of the environment, the preservation of the current urban structure and the interesting and historically valuable architecture as well as the solution of the construction and housing issues and their financing (Cvik, MacGregor Pelikánová, 2017). From the point of view of financing the regeneration and redevelopment of brownfields, the European Regional Development Fund and the specific operational programs, such as the Integrated Regional Operational Program, the OP Environment and the OP Enterprise and Competitiveness Innovation, are the most important ones (more on http://www.strukturalni-fondy.cz) or, where appropriate, rural development programs. The European Union thus tackles the issue of brownfields at the local level indirectly (through financial programs) and through individual public institutions.

Tab. 1: Involved actors in problem solving of brownfields

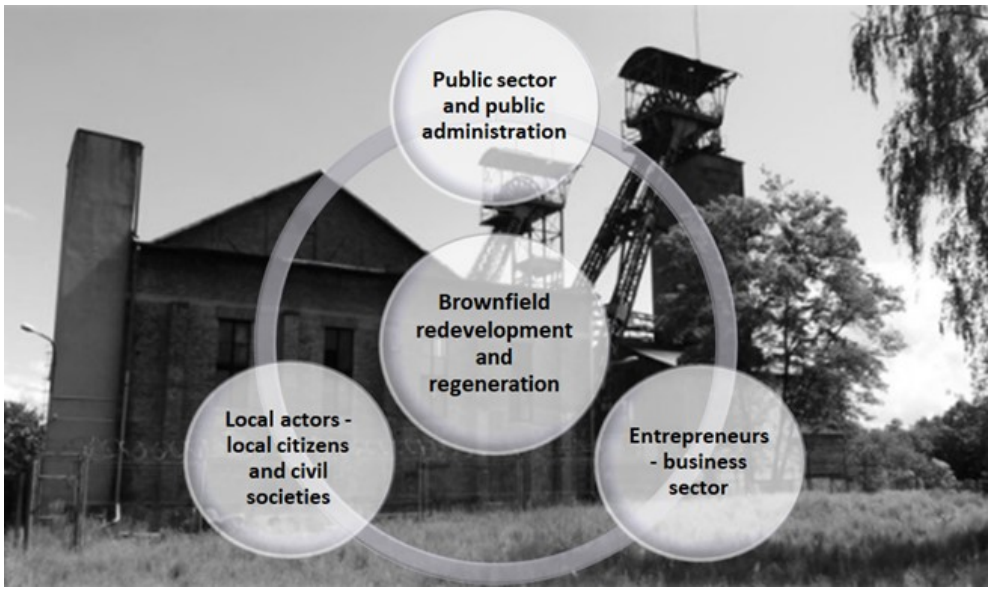
involved actors on the personal level	brownfields owners, consultants, off-governmental organizations, citizens and officials
involved actors on the local level	brownfields owners, local investors, local self-government, governmental bodies with local powers, technical, realty or legal consultants, financial institutions, the local population
involved actors on the regional level	brownfields owners, bodies of regional administration, regional financial institutions, regional development agencies, governmental bodies with local powers, regional investors and regional public
involved actors on the national level	government, parliament, affected state institutions and bodies, national regulatory bodies, national brownfields owners, national financial institutions and state investors
involved actors on the global level and EU level	European Commission, European Parliament, global investors, global financial groups and international brownfields owners

Source: own elaboration according to Ferber et al. (2006)

Closer to the concrete solution of problems with brownfields are institutions at the level of lower territorial self-governing units, i.e. regions and municipalities. The status and competences of the regions are defined by a special Act (No. 129/2000 Coll.), according to which the region ensures the universal development of its territory and the needs of its citizens. The county is administered by the regional council, other bodies, governors and regional authorities. In the context of brownfields, it is possible to solve this problem within committees (usually also staff of the City Development and/or Strategic Planning Department or the Building Department). Committees and commissions can also set up a municipality. The municipal authority consists of the mayor, deputy mayor (deputy mayor), the secretary of the municipal office (if this office is established) and the employees of the municipality included in the municipal office. The regional and municipal authorities must be managed according to the principles of good public administration (Recommendation Rec (2007)7, 2008). Local government in the context of brownfields plays an active role in identifying brownfields, mitigating the effects of brownfields, supporting owners and advising, actively promoting brownfield re-use, active land use planning in the neighbourhood of brownfields and brownfields, projects dealing with the problem of brownfields and in the preventive role and protection against the emergence of new brownfields. It is a desirable trend that more and more municipalities are dealing with brownfields and are then the subject of development concepts and strategies for urban and municipal development. Tab. 1 summarizes the various actors involved in the field of brownfields.

The aforementioned public authorities involved in the brownfield business co-operate with the Private Public Sector and citizens living in the affected area (see Fig. 1). However, there must always be stakeholders with varying levels of direct influence and interest in solutions to eliminate the current unsuitable situation of a given brownfield and those whose regeneration and redevelopment is indirectly and mediated.

Fig. 1: Stakeholders in addressing the issue of brownfields



Source: own elaboration according to Klusáček et al. (2011)

Public Private Partnership is a 'contract-based public-private partnership that is concluded for a specific purpose, usually providing public services or infrastructure' (Ostřížek, 2007). It follows from the definition that the essence of this cooperation is a certain relationship between a public administration body and a business entity that arises on the basis of a contract and leads to the attainment of a particular objective. Another key feature is the transfer of the investment cost of the desired objective to that party to a contract that is able to better manage the investment intensity. Public-private partnerships can help and facilitate the

funding of brownfield projects in cases where the public sector (municipalities, regions, state) wants to reduce or minimize the costs associated with the regeneration and construction of brownfield infrastructure. Brownfields are always costly, and their regeneration entails considerable risks. Projects for their revitalising can only be successful if the public sector is able to secure a suitable partner - an investor who is not afraid to spend his money in troubled brownfields precisely because his partner is the public sector.

Through Tab. 2, we define the basic issues that are related to the existence of brownfields and are the source of interventions by public administration institutions. These problems are linked to a number of externalities that are covered by the public budget (pollution of water resources, increased dustiness, noise, soil contamination, concentration of a socially excluded person or people at risk of social exclusion, undesirable soil impoverishment and degradation, unregulated urban growth and requirements to provide appropriate technical infrastructure, etc.). The general problem of brownfields is their negative impact on the cost of the surrounding property, which is transforming into a further decline in the social level in the immediate neighbourhood. Because this is a local problem, local government is the key to solving this problem. For Central Europe, a lack of public-authority competencies to deal with brownfield issues and well-informed and committed local governments have to co-operate with other (higher) levels of government: (1) the government and the legislature must formulate and approve the inevitable amendments to the applicable legislation , (2) there is a need to prepare public programs to deal with the reuse of brownfields and allocate funds to them, (3) regions must pay attention to the brownfield area when setting their priorities in the context of using the Structural Funds, and (4) motivate private owners to effectively use abandoned areas, etc.

Tab. 2: Issues connected with brownfields, the causes of the intervention of the public administration

economic	the loss of attractiveness for the investors and the visitors of the regions
financial	the decrease in the income to the public budget (fees), the ability to finance other public goods is threatened, the loss of the basis for tax calculation
geographical	deprivation of the neighbourhoods, unregulated urban sprawl
ecological	water pollution, soil contamination, buildings contamination
social	higher unemployment, higher criminality, the demand for social benefits

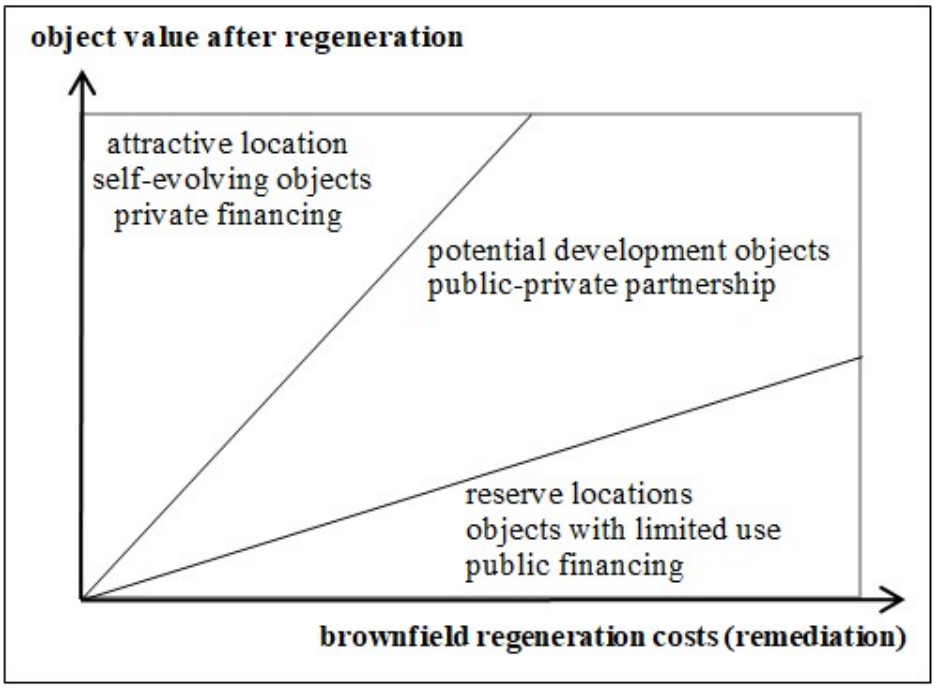
Source: own elaboration according to Kadeřábková and Piechy (2009)

The definition of the role of the public sector can also be determined by the probability of using brownfields in the near future. The measure of the necessary intervention of the public administration in the form of the amount of public funds needed for the further utilization of the brownfields is provided by the ABC model (CABERNET, 2006), see the diagram depicted in Fig. 2, where the vertical axis y is the value of the plot after regeneration and on the horizontal axis x regeneration costs. According to this division, there are three groups of brownfields: (1) self-evolving objects in attractive locations, i.e. projects implemented by the private sector. These are brownfields with high development potential, which are well located and have a high chance that the market will take care of them. They are also characterized by low preparation and rebuilding costs where the public sector only provides for a legislative framework without the need for public financial support. (2) Potential development objects (potential locality and development areas), i.e. brownfields with concealed development potential, which are of local and regional importance but also accompanied by risks that the private sector itself does not want to bear. Projects for elimination brownfields are thus funded by public and private partnerships. According to the amount of this support, it is subdivided into three sub-groups:

- support up to 20% - there is a funding gap for costs that could not be realized. This investment usually returns in some way, for example through new jobs,
- support of 20 - 50% - These projects are mainly created for public benefit purposes such as environmental protection or various social objectives,
- the last subgroup is brownfields in such a bad condition that they harm the environment as well as health and endanger the safety of citizens. First, there is a possibility to call person to account, but if this possibility fails, then the remedy has to be paid from the public budgets (the security of the building or its seizure).

The last group (3) in this category are buildings without development potential with a limitation characteristic of the high costs of regeneration and the low value of the site after regeneration. These brownfields are located in areas where there is a large over-supply above demand and also long-term commercial use is not expected from these facilities. Projects to address these brownfields are fully funded from public sources and for the exclusive activities of public sector institutions.

Fig. 2: Types of brownfields according to the probability of their use (ABC model visualization)



Source: own elaboration according to Ferber et al. (2006)

The activation of public administration institutions is also inversely proportional to the economic attractiveness of the given brownfield (brownfield localization, height of damage to the building, ecological burden, etc.) where, in this division of brownfields, we divide brownfield regeneration into (1) zero-level regeneration, (2) regeneration with moderate support, (3) non-commercial brownfields, (4) dangerous brownfields and (5) others (Kadeřábková, Piecha, 2009). Only in the first type is it likely that the market itself will be taken care of by removing brownfields; in all others, co-operation with the public sector is necessary, if not directly conditional. Particularly in dangerous brownfields that threaten human life and the environment, the activity and duty to act on public sector institutions is governed by laws and other standards.

3 Examples of good practice in the context of a public solution to the existence of brownfields

In the context of the focus of this contribution, primary research, which took place in the period 2016/2017 on the territory of the Statutory City of Karviná, can be selected as follows: respondents generally prefer to address brownfields rather from the private sector and financed from private sources to the tax receipts to which they are payers), but in specific cases of long-term unresolved brownfields in the center of Karviná insist on public administration intervention. This procedure is more recommended for abandoned cultural and architecturally valuable objects closer to the center. The paradox is that although citizens are demanding a private solution for brownfields, their reuse is directed to public activities for sports and relaxation purposes (sports grounds, parks). In a situation where the city has to participate in the regeneration of brownfields, respondents want to use renewed housing facilities. Local public administration institutions should also actively participate in their activities (negotiation) on private solutions and the plans of private persons to reuse the brownfield (for example, whether to build a new department store or parking lot at a given location). From this step, citizens promise to regenerate and utilize the original abandoned complex in the context of preserving the public interest and transferring public attitudes to the given site over a purely private attitude. Last but not least, the regeneration of brownfields is a major advisory activity of regional public administration organizations and public (state) agencies, and its direct involvement in drawing or only mediating the EU Structural Funds.

Examples of good brownfield regeneration practices in the Moravian-Silesian Region include, for example, the Pension in the Bohumín Tower, which was created by the reconstruction of the unused municipal water reservoir. The city used its subsidies from the European Union, the Moravian-Silesian region contributed, and Bohumín from its sources paid only 26.8% of the total costs (6.7 million crowns). The project for this renovation was even chosen as the best investment of 2006 in Top Invest. If we still stay in Bohumín, it is necessary to mention the monumentally protected National House, which bought the town in 2008 from a private entity, and only refurbished and redeveloped a hotel with a restaurant by means of a preferential loan from the subsidy program Jessica (more on www.mesto-bohumin.cz). Another example can be found in the area of Opava in the premises of the Dukel barracks (Dukelské kasárny), which has been the exclusive city of Opava since 2008. The aim of the future use of the premises was to support the Moravian-Silesian Region, whose aim was to prevent the deterioration of the complex and to involve the barracks in the functional part of the town the barracks became a natural part of Opava. The private solution of the project proved to be unsuccessful, so in 2015 the city decided to carry out the regeneration itself. A new study has been commissioned to develop urban barracks in the sense of building an area of housing units and houses including civic amenities and relaxation and relaxation areas. In February 2018, a call for proposals for the revitalization of the Dukel barracks was published in the context of a study by Atelier 38, where the Opava city would participate in the entire barracks revitalization in cooperation with private investors (www.opava-city.cz). Among the cooperation between the municipality and the private entity can be included, for example, the remediation project 'Gravitační odvodnění Hrušova', which was based on the own activity of the Statutory City of Ostrava and whose purpose is to carry out important water management, rehabilitation and landscaping operation of an industrial zone with light industry. The City of these revitalization activities received a subsidy from the Ministry of Industry and Trade in 2010, redeemed land not yet owned and unified plans for further development of the area, which aligned with the land use plan. The newly created industrial zone has to offer up to 2000 new jobs, and at present the city registers the interest of several business entities who already want to invest in the zone (www.ostrava.cz).

Conclusion

The aim of the paper was to outline some possibilities of public administration intervention in solving problems connected with the existence of unused areas, complexes and objects. Only initiative and solution of actively approaching local governments and other public-law institutions have the chance to adequately use limited tools and financial as well as non-financial resources in the effective regeneration and redevelopment of brownfields located in their own cadastral territory. There is no doubt that local self-government at the lowest local level is one of the key stakeholders in revitalizing brownfields and, if appropriately motivated, is able to find, within an appropriate time horizon, whether to participate in a functional solution to brownfield related issues.

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RISKS ASSOCIATED WITH EVALUATION OF REGIONAL DISPARITY: THE INFLUENCE OF METROPOLITAN AREAS ON RESULTS IN VISEGRAD GROUP COUNTRIES

Pavel Zdražil, Lenka Reifová

Abstract: *The aim of this paper is to evaluate the influence of metropolitan areas on the development of regional disparity results in Visegrad Group countries. The methodological framework is based on the neoclassical growth model. In particular, the approaches of beta- and sigma convergence have been used to examine the development of regional disparity between 2000 and 2016. The analysis results suggest that the influence of metropolitan areas on the results of regional disparity is large in many fields of development like: GDP, income, unemployment, education and expenditures on research and development. In fact, inclusion, or exclusion, of metropolitan area is very often the decisive reason for considering the convergence, or divergence, process to be statistically significant. However, the metropolitan areas do not bias only the results about tendency. The analysis suggests they are much more important in terms of intensity of particular processes. The results of intensity differ by hundreds of percent between the samples with and without the metropolitan areas. On the other hand, the results have been usually biased only in terms of intensity and significance. In general, the effect of metropolitan areas in Visegrad Group countries is not strong enough to change the results from convergence to divergence, and vice-versa.*

Keywords: *disparity measurement, metropolitan areas, Visegrad Group, regional development, regional policy.*

JEL Classification: *R11, O47.*

Introduction

The interest in the field of detailed assessment of regional disparity does not belong among the long-standing and well explored topics of regional development; however, more and more attention is currently being focused on this area. It can be argued that in the last decades it has inherently gained its place in extensive discussions about the potential and limits of economic growth and regional development. Nowadays, the issue of measuring and evaluating of regional development became very important, especially at the level of the European Union. The reason is that there is a need to defend and improve the mechanism of annual redistribution of tens of billions of EUR from the European structural and investments funds (European Commission, 2015; Dyba et al., 2018). In fact, the challenge of directing of existing disparity belong among pivotal and outstanding objectives of the European regional policy or the European Cohesion Policy respectively, which has long been pursuing the so-called 'growth oriented convergence' for a very long time (Kraftová, Matěja, 2015).

One can consider the area of growth is dominant for the assessment of disparity across the European regions, due to the assumption of a correlation between economic performance and the welfare of the population (Barca et al., 2009). However, considering the 'Beyond GDP indicators' discussion, it is appropriate to focus more attention on indicators that have a more evident link to the quality of life of population in regions (Constanza et al., 2009). In this framework, it is therefore appropriate to evaluate development aspects and disparity

in other relevant areas such as income, investment, (un)employment, etc. (Capello, Nijkamp, 2009).

As it is not appropriate to focus on a single indicator in the detailed assessment of regional disparity to understand the wider context and the shaping process of the regional policy, it is literally necessary to consider the socio-economic space as a heterogeneous entity, which has a decisive influence on regional development (Greenhut, Smith, 2006). The entity in which the distribution of population and economic activity is very uneven due to the several reasons like natural assumptions, as well as random deviations, the effect of agglomeration economies and the underlying reality of imperfectly competitive markets, at least. In other words, where a significant share of economic life is concentrated and performed mainly in a few cities and regions (Krugman, 1996; Fujita et al., 1999).

The metropolitan areas are very often the extreme cases of such regions. In fact, these areas usually concentrate tens of percent of the national economic potential and performance, making them a major element that is responsible for the level of regional disparity in a particular country (Fujita, Thisse, 2002). Moreover, metropolitan areas often have significant benefits exceeding the other regions on both the demand side (Morris et al., 2018) and the supply side (Henderson, 1987; Rosenthal, Strange, 2004). Hence, they are usually 'tuned' on completely different development trajectories than the other regions. Moreover, the relative weight of metropolitan areas can also make a significant impact on the results of the assessment of the development of regional disparity, especially in smaller countries. For instance, the results of examination in samples involving metropolitan areas and samples without these areas are different by tens of percent, in terms of regional variability of selected indicators of social and economic development in the Visegrad Group countries (Reifová, 2018). Moreover, some partial conclusions on the issue of influence of metropolitan areas on the development of regional disparity in Visegrad Group countries are also revealed by other studies (Zdražil, Applová, 2016).

With all the above in mind, the aim of this paper is to evaluate the influence of metropolitan areas on the development of regional disparity results in Visegrad Group countries. In particular, the paper will focus on the assessment of disparities in terms of selected indicators that represent traditional themes of economic and social development, and that are usually considered and influenced by the regional policy. One can suggest the knowledge on potential biases caused by the effect of metropolitan areas is very important for evaluation of the development of regional disparity and shaping of further development interventions and strategies. In fact, it allows to avoid the risks of inappropriate development policy interventions.

1 Methods

To fulfil its aim, this paper has been based on the following methods and assumptions. The analysis at the NUTS 2 level of regions has been conducted to capture the effect of metropolitan areas on the development of regional disparity in Visegrad Group countries. In particular, it focused on 35 regions, of which 8 were Czech (CZ), 7 Hungarian (HU), 16 Polish (PL) and 4 Slovak (SK). In addition, the development of disparities across all regions of the Visegrad Group (V4) has been examined as well. In order to assess the effect of metropolitan areas, the results of measurements were compared between the samples with the metropolitan areas – full samples, supplemented by the suffix 'a'; and non-metropolitan area samples – excluding the regions of capital cities, i.e. Prague, Central Hungary (Budapest's regions), Mazovian Voivodeship (Warsaw's region) and Bratislava region, supplemented by the suffix 'b'.

The conventional framework of disparity measurement that is based on the neoclassical growth model has been applied. In particular, the paper employs a combination of beta convergence approach, which is based on the assumption of an inverse relationship between the initial value of the respective indicator and its growth (Mankiw et al., 1992; DeLong, 1988; Barro, Sala-i-Martin, 2004), and sigma convergence, which is, on the contrary, a synonym for measuring disparities via the development of variability (Baumol, 1986; Quah, 1996; Barro, Sala-i-Martin, 2004).

The beta-convergence approach has been used only to illustrate the existing differences in terms of level of development and growth patterns among the regions and countries of Visegrad Group. However, the sigma convergence approach has been used to assess the development of regional disparities, since it offers a more comprehensive view and, at the same time, easier comparability of results from the measurement of different samples. Moreover, the beta convergence is formally necessary, but not a sufficient condition for the sigma convergence (Monfort, 2008; Islam, 2003). In fact, the applications of the beta convergence principles are used for obtaining the information about the structure of samples under examination. Moreover, it has been also used for a more comprehensive interpretation of the results of the sigma convergence, that may one suggest as a proportionate enhancement of both approaches (Zdražil, Applová, 2017).

Based on the beta convergence principle, the logarithmic transformation has been applied on the indicators assessed. This helped to eliminate the positive asymmetry of the distribution and reduce the issue of outliers (Minařík et al., 2013). Therefore, the logarithms of the initial values (y_0) and the average growths (k) in terms of the following equation (1) were calculated, where (y_n) means the value of last examined year and (n) is the length of period under examination. In the next step, based on the knowledge of logarithmic initial positions (y_0) and growth patterns (k), the X-Y graphs were constructed, where the initial values were plotted against the average growth coefficients of particular indicators (the graphical parts of Fig. 1 to 5).

$$logk = \frac{1}{n}(log\ y_n - log\ y_0) \tag{1}$$

In terms of disparity development measured with the approach of sigma convergence (the tabulated parts of Fig. 1 to 5), the standard approach of assessing the coefficient of variation (CV) has been used, see equation (2), where (σ) means the standard deviation and (x) means the average.

$$CV = \frac{|\sigma|}{x} \tag{2}$$

The significance of the regional disparity development trends or the slopes of the variation coefficients (β) respectively, were verified by the standard approach for testing the significance of trends in time series. In particular, it has been based on the assessment of the statistical significance of the correlation coefficients (R).

To assess the impact of metropolitan areas on the development of regional disparity in the Visegrad Group countries, 5 relevant indicators were selected. These represented the traditional themes of economic and social development on which the regional policy is usually aimed. In fact, the knowledge on potential biases caused by the effect of metropolitan areas is very crucial for assessing the development of disparity in these indicators and shaping of further development interventions and strategies. In particular, this analysis examined the following indicators: gross domestic product per capita (GDP), disposable income of households per capita (Disposable income), long-term unemployment rate of active population (Long-term unemployment), tertiary education attained in population aged 25 - 64 (Tertiary education) and gross intramural expenditures on research and development per

capita (GERD). Finally, the indicators that could be influenced by the different developments of price levels are assessed in purchasing power standard, to increase the relevance of particular results.

The disparity development has been examined between 2000 and 2016. However, the examination of Disposable income has been limited to 2000 - 2015 and examination of GERD to 2001 - 2015. The reason for such limitations followed from the availability of data. All the data have been linked from the Eurostat's public regional accounts databases. (2017).

2 Analysis results and discussion

The analysis results of regional disparity development in all 5 indicators for both samples 'a' (full sample) and 'b' (except the metropolitan areas) are summarized in the following Fig. 1 to 5. The graphical part illustrates the initial positions and the average rate of growth in particular regions. This provides a specific view of the composition and development patterns of the samples analyzed, but also of their differences. The graphical part is divided into 4 segments, where the average values of both variables were used to determine the segment borders. Such a splitting up allows an easier orientation in results presented. This information is quite crucial for interpreting the disparity of both 'a' and 'b' samples evaluated through the sigma convergence approach (tabled part). Based on the β parameter of the linear regression equation of the development of CV, one can determine the predominant tendency of the development of regional disparity – regional convergence (trend of CV has a negative slope) or regional divergence (trend of CV has a positive slope), and the intensity of such a process. The correlation coefficient R then helps to evaluate the statistical significance of the trend observer and to formulate a conclusion on the development of regional disparity in the terms of the indicator under examination.

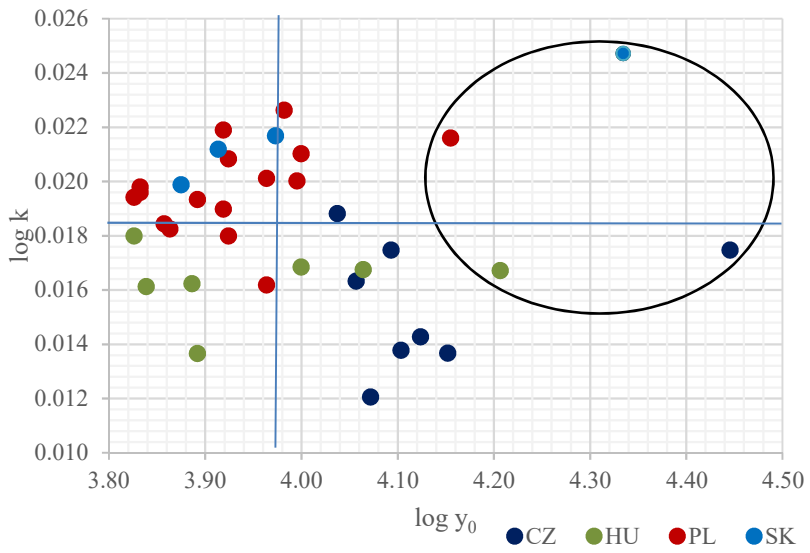
As shown in Fig. 1, the metropolitan areas of all the Visegrad Group countries are significantly more developed than the other regions, and at the same time, their average speeds of growth are high, within particular countries. Similarly, it is clear that such a distinction of metropolitan areas can influences the findings on the development of regional GDP disparities measured through the approach of sigma convergence, in some countries at least.

While in the case of full samples, the divergence is confirmed only among regions of Poland and Slovakia, the exclusion of metropolitan areas shows a slight divergence among the Hungarian regions as well. Moreover, among all the regions of Visegrad Group, then, in the sample 'b', convergence is measured instead of an inconclusive result of sample 'a'. However, one can suggest the more significant result is revelation of the influence of metropolitan areas on the intensity of particular process. For instance, in the case of Slovakia, the intensity of divergence of sample 'a' is approximately twice as large as the intensity of divergence of sample 'b'. Furthermore, for Polish regions, this difference is ca one third.

Although beyond the primary purpose of this paper, another undoubtedly an interesting finding follows from the GDP analysis results; in particular, from the segmentation of regions in the Czech Republic where the more developed regions of Bohemia formed a so-called 'club' (see Baumol, 1986; McCann, 2013). In this club, the regions experience pretty large divergence. On the contrary, the 3 generally less developed regions of Moravia converge to these regions, due to the higher growth rates. These opposite processes, however, in total reduce each other; and hence, one cannot conclude on the general tendency of disparity among the regions of the Czech Republic for neither of the samples examined.

Fig. 1: Analysis results of the GDP indicator (2000 - 2016)

Initial level (y_0) and average growth rate (k) of regions



Sigma convergence

	β	R	Proc.
CZa	0.0015	0.3795	-
HUa	0.0011	0.2252	-
PLa	0.0031	0.9412	Div.
SKa	0.0058	0.8318	Div.
V4a	0.0007	0.1523	-
CZb	-0.0008	0.3920	-
HUb	0.0016	0.5044	Div.
PLb	0.0023	0.9473	Div.
SKb	0.0027	0.6054	Div.
V4b	-0.0032	0.8841	Conv.

Notes: metropolitan areas are highlighted in a circle; 'β' refers to the time-series of coefficients of variation slope; 'Proc.' refers to the result – 'Conv.' for a convergence process, 'Div.' for a divergence process and '-' for an uncertainty that resulted from the low significance of a regression model; suffixes 'a' (full sample) and 'b' (except the metropolitan areas) refer to particular samples

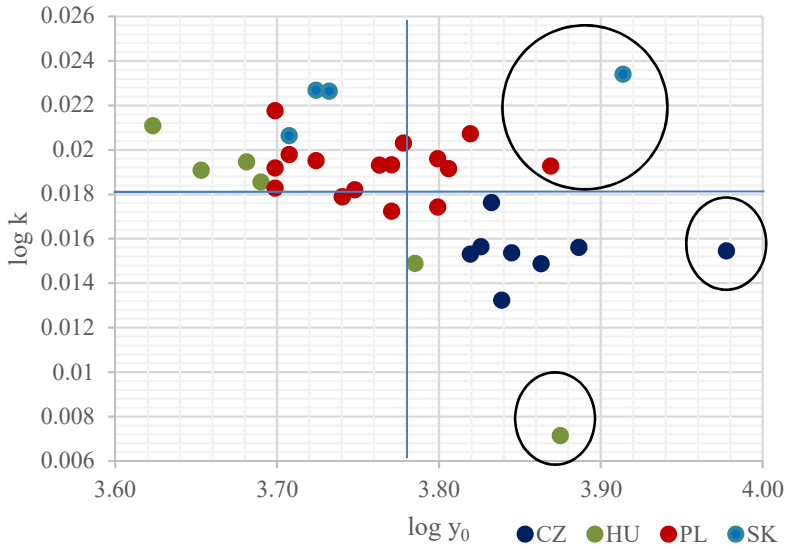
Source: Reifová (2018) and own processing based on Eurostat (2017)

The results of the Disposable income indicator, which are summarized in Fig. 2, can be considered to some extent analogous to the results of the GDP indicator. From a development level point of view, the metropolitan regions can, once again, be labeled as the most developed. However, they are not significantly different in terms of average growth rates from other regions in their country. In fact, there is only one exception from this rule – the region of Budapest, which is very distinct from the other regions of the Visegrad Group with a very low average growth rate.

The sigma convergence approach does not confirm any clear tendencies of disparity development among the regions of the Czech Republic in both samples 'a' and 'b'. Nevertheless, the both results of Hungary and the Visegrad Group coincide with the reduction of regional disparities or convergence respectively. In the case of Hungary, however, a large difference in the intensity of this process is identified. In particular, the convergence intensity is ca 3.5 times lower when the metropolitan area is not involved in the analysis measurement. Considering the left part of Fig. 2, one can interpret such important difference as a catching-up process of the Hungarian regions to the very slowly growing metropolitan region of Budapest. However, in the whole Visegrad Group, the convergence intensity measured for sample 'b' is about a quarter higher than for sample 'a'. Finally, the unclear results of full samples were specified as a weak divergence for samples 'b' in the cases of the Polish and Slovak regions.

Fig. 2: Analysis results of the Disposable income indicator (2000 - 2015)

Initial level (y_0) and average growth rate (k) of regions



Sigma convergence

	β	R	Proc.
CZa	-0.0005	0.2562	-
HUa	-0.0121	0.8107	Conv.
PLa	0.0007	0.4839	-
SKa	0.0012	0.3234	-
V4a	-0.0021	0.5289	Conv.
CZb	0.0007	0.4427	-
HUb	-0.0035	0.7146	Conv.
PLb	0.0006	0.6475	Div.
SKb	0.0020	0.6593	Div.
V4b	-0.0027	0.7982	Conv.

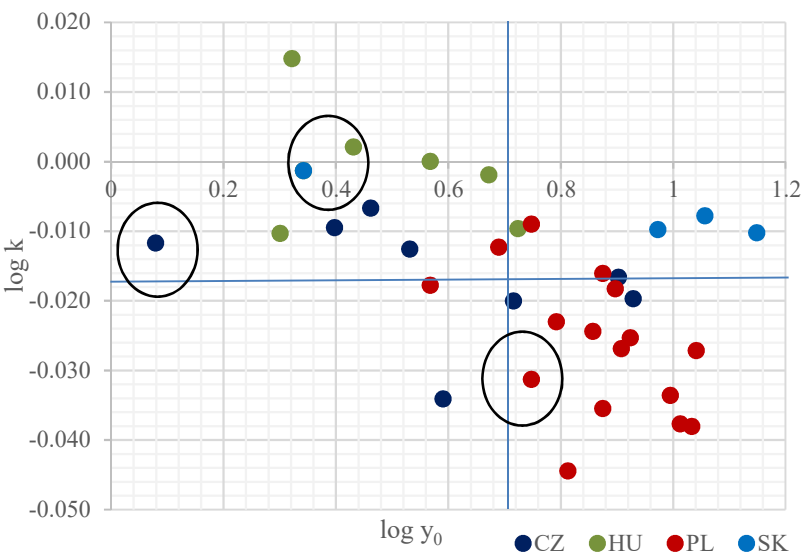
Notes: see notes below Fig. 1

Source: Reifová (2018) and own processing based on Eurostat (2017)

Before presenting the results of another indicator – Long-term unemployment; it is worth recalling that in terms of perception and development targeting, the nature of this indicator is different from the others in this analysis. In particular, the criterion of positive development of unemployment is not maximization of values but minimization instead. Although this difference does not affect the results and conclusions derived from the approach of sigma convergence, it has a major influence on the evaluation of the graphical part of Fig. 3, which compares the initial levels of unemployment and the average speed of growth rate in the regions.

Fig. 3: Analysis results of the Long-term unemployment indicator (2000 - 2016)

Initial level (y_0) and average growth rate (k) of regions



Sigma convergence

	β	R	Proc.
CZa	-0.0082	0.6149	Conv.
HUa	0.0200	0.5262	Div.
PLa	0.0029	0.4204	-
SKa	0.0001	0.0124	-
V4a	0.0000	0.0044	-
CZb	-0.0087	0.5644	Conv.
HUb	-0.0035	0.2821	-
PLb	0.0014	0.2298	-
SKb	0.0038	0.2614	-
V4b	0.0017	0.2056	-

Notes: see notes below Fig. 1

Source: Reifová (2018) and own processing based on Eurostat (2017)

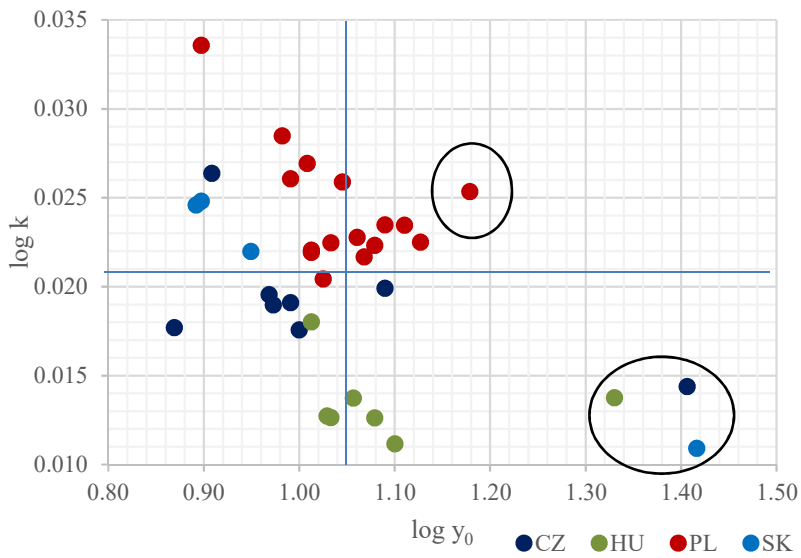
The Fig. 3 shows clearly also in the case of Long-term unemployment that the initial positions of metropolitan areas are either significantly better (Prague and Bratislava) or at least above average (Budapest and Warsaw), within particular country. However, in terms of growth rate, or the desired decrease respectively, these regions are rather weaker (except the region of Warsaw). On the other hand, it seems quite logical that, even with a higher job vacancy rate of metropolitan regions, no significant declines are measured in terms of a very low or even virtually non-existing unemployment.

One can consider the differences in results of the sigma convergence between the samples 'a' and 'b' for the Long-term unemployment are the least significant throughout the analysis. In both samples, only the convergence of the regions of the Czech Republic is found. Moreover, even in terms of the intensity of the process there is no noticeable difference in results. In fact, the only significant change is measured among the Hungarian regions, which show divergence for the sample with the metropolitan area, while there is no unambiguous tendency after excluding of that. The analysis results of Poland, Slovakia and Visegrad Group coincide with the uncertainty of the process.

The effect of metropolitan areas is, on the contrary, rather significant in the results of the evaluation of the Tertiary education disparity development, which are summarized in Fig. 4. The convergence is identified among the regions of the Czech Republic and Slovakia while analysing sample 'a', but the results of sample 'b' are ambiguous in all the countries. Considering the entire Visegrad Group, the convergence tendency within the sample including the metropolitan areas is the result. However, after exclusion of metropolitan areas, the results show a slight divergence. Hence, there is only agreement between the results of Hungary and Poland that suggest ambiguous conclusions on the development of regional disparity.

Fig. 4: Analysis results of the Tertiary education indicator (2000 - 2016)

Initial level (y_0) and average growth rate (k) of regions



Sigma convergence

	β	R	Proc.
CZa	-0.0085	0.9021	Conv.
HUa	0.0001	0.0447	-
PLa	0.0001	0.0480	-
SKa	-0.0122	0.8964	Conv.
V4a	-0.0048	0.9369	Conv.
CZb	-0.0005	0.1681	-
HUb	-0.0008	0.2930	-
PLb	-0.0013	0.4392	-
SKb	-0.0003	0.0602	-
V4b	0.0023	0.6422	Div.

Notes: see notes below Fig. 1

Source: Reifová (2018) and own processing based on Eurostat (2017)

Similarly to the GDP and Disposable income indicators, the metropolitan regions are the most developed in terms of Tertiary education within their countries. However, while the growth of the metropolitan areas of Hungary and Poland can be characterized as slightly above average rate, in respect to particular countries, the growth rates of the Prague and Bratislava regions are rather lagging behind. This can be, to some extent, explained

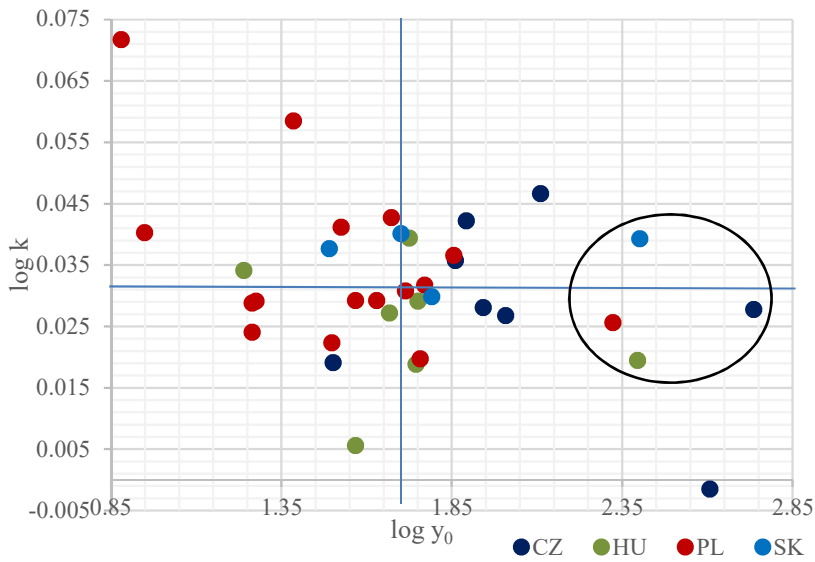
by the findings of convergence among the Czech and Slovak regions within the sample 'a' and the ambiguity of the results within the sample 'b'. In fact, the strength of the ongoing catching-up process between metropolitan areas and the other regions is reflected in the conclusions of general trends of regional disparity.

The results of the last indicator under examination – GERD, which are captured in Fig. 5, once again, confirm the general conclusions of the analysis above. In particular, the effect of metropolitan area often plays an important role in the evaluation of regional disparities. In the case of the Czech regions, the convergence is apparent in both cases, however, the value of sample 'a' is ca one half of that measured for 'b', in terms of the process intensity. An analogous conclusion follows from the analysis of all regions of the Visegrad Group, where the difference in intensity of convergence processes is only slightly lower. Moreover, there is no unambiguous tendency in disparity development for regions of Hungary and Poland when excluding the metropolitan areas. However, there are results of convergence for the samples with metropolitan areas. In addition, the opposite conclusion applies to the regions of Slovakia where the effect of the metropolitan area changes the conclusion on the development of regional disparities from convergence to the inconclusiveness result.

From the initial positions point of view, the metropolitan areas are definitely the most developed, but in terms of growth rates they rank from average to below average values within their own countries (except the Bratislava region). Particularly in the case of metropolitan areas with lower growth dynamics (regions of Budapest and Warsaw), there can be no doubt about significant catching-up processes that trigger the convergence tendencies identified by the measurement of the sigma convergence approach.

Fig. 5: Analysis results of the GERD indicator (2001 - 2015)

Initial level (y_0) and average growth rate (k) of regions



Sigma convergence

	β	R	Proc.
CZa	-0.0121	0.5842	Conv.
HUa	-0.0194	0.8729	Conv.
PLa	-0.0183	0.8680	Conv.
SKa	0.0062	0.3373	-
V4a	-0.0181	0.6669	Conv.
CZb	-0.0254	0.6769	Conv.
HUb	0.0019	0.1575	-
PLb	-0.0051	0.4190	-
SKb	-0.0134	0.6548	Conv.
V4b	-0.0308	0.8356	Conv.

Notes: see notes below Fig. 1

Source: Reifová (2018) and own processing based on Eurostat (2017)

With all the above in mind, it can be said that the effect of metropolitan areas is pretty significant in the assessment of regional disparity. In fact, inclusion, or exclusion, of metropolitan area is very often the decisive reason for considering the convergence, or divergence, process to be significant. Perhaps even more important is the finding that metropolitan areas often have a significant impact on intensity of the convergence, or divergence, process. In fact, we found for several times that the results of intensity differ by hundreds of percent between the samples with and without the metropolitan areas.

On the other hand, the results are usually biased only in terms of intensity and significance. In general, the effect of metropolitan areas in Visegrad Group countries is not strong enough to make an 'U-turn' in results and change the conclusion from convergence to divergence, and vice-versa. Thus, for instance, to wrongly resolve the real divergence tendencies of sample of regions that, at the same time, similarly experience a strong catching-up process to the metropolitan region is not very common. In fact, the analysis suggests that such a situation should not usually result to a false convergence conclusion.

Finally, given the fact that analysis examined samples of different sizes (from sample of 3 and 4 Slovak regions to 31 and 35 Visegrad Group regions respectively), the logical question is whether the effect of metropolitan areas depends on the size of particular sample. Considering the assumptions of statistical methods, in general, one should expect larger biases in small samples. However, based on the results, it is surprisingly not apparent that the size of the sample would be significantly related with the strength of the metropolitan areas effect.

Conclusion

The aim of this paper was to evaluate the influence of metropolitan areas on the development of regional disparity results in Visegrad Group countries. The paper focused on the assessment of disparities in terms of selected indicators that represent traditional themes of economic and social development, and that are usually considered and influenced by the regional policy. In particular the indicators of gross domestic product, disposable income of households, long-term unemployment, tertiary education and gross intramural expenditures on research and development were examined. The methodological framework was based on the conventional disparity measurement that was derived from the neoclassical growth model. In particular, the combination of the beta convergence and sigma convergence approaches has been used. The beta convergence was used to illustrate regional differences in terms of level of development and growth pattern of particular regions. On the contrary, the sigma convergence was used to evaluate disparity development, because it offers a more comprehensive view and easier comparability of results from the measurement of different samples. The analysis has been conducted at the NUTS 2 level of regions between 2000 and 2016. The conclusions were derived from the results of comparison of full samples (including metropolitan areas of Prague, Budapest, Warsaw and Bratislava) and samples excluding metropolitan areas.

The analysis results suggest that the influence of metropolitan areas on the results of regional disparity is large in many fields of development. In fact, inclusion, or exclusion, of metropolitan area is very often the decisive reason for considering the convergence, or divergence, process to be statistically significant. Moreover, regardless the indicators under examination, the metropolitan areas are generally more developed than other regions of particular country. However, the dynamics of their development is very different in both terms of the countries under review and the indicators assessed. Another important conclusion is that, although the weights of metropolitan areas bias the results, one cannot claim that metropolitan regions would universally bias the results in only favor of convergence or divergence tendencies.

However, the metropolitan areas do not bias only the results about tendency. The analysis suggests they are much more important in terms of intensity of particular processes. The results of intensity differ by hundreds of percent between the samples with and without the metropolitan areas. On the other hand, the results have been usually biased only in terms of intensity and significance. In general, the effect of metropolitan areas in Visegrad Group countries is not strong enough to change the results from convergence to divergence, and vice-versa. Moreover, it is not obvious from results that the size of the effect of metropolitan areas would be related to the size of the sample under consideration.

Therefore, the influence of metropolitan areas on the development of regional disparity in Visegrad Group countries is, as a rule, limited to the issue of identification of prevailing tendency rather than its orientation.

Finally, one can conclude that confirmation of the effect of metropolitan areas in conclusions about the development of regional disparity should be reflected in the practical activities related to the shaping of development interventions and strategies, as well as the evaluation of their achievements. The metropolitan areas, as the growth poles of national economies, would usually be in a completely different position from other regions of the country and would follow other developmental trajectories. On the other hand, they are an integral part of their countries and, therefore, they cannot be completely ignored within the analysis and decision-making process; despite they can be usually seen as the heavy outliers. We suggest the 'dual evaluation' where, besides the evaluation of the full samples, attention is also paid to the evaluation of the samples without metropolitan areas, seems to be a fairly appropriate way of measuring disparities in detail. Considering such a broader insight into the whole issue, it would be possible to avoid some of the potential risks of overestimating or, on the contrary, underestimating of interventions implemented within the framework of regional policy. At last but not least, such a dual evaluation should also avoid some mistakes that follow from inaccurate materials based on full sample measurements, which are used as a knowledge base for the formulation of specific interventions, as well as more general development strategies.

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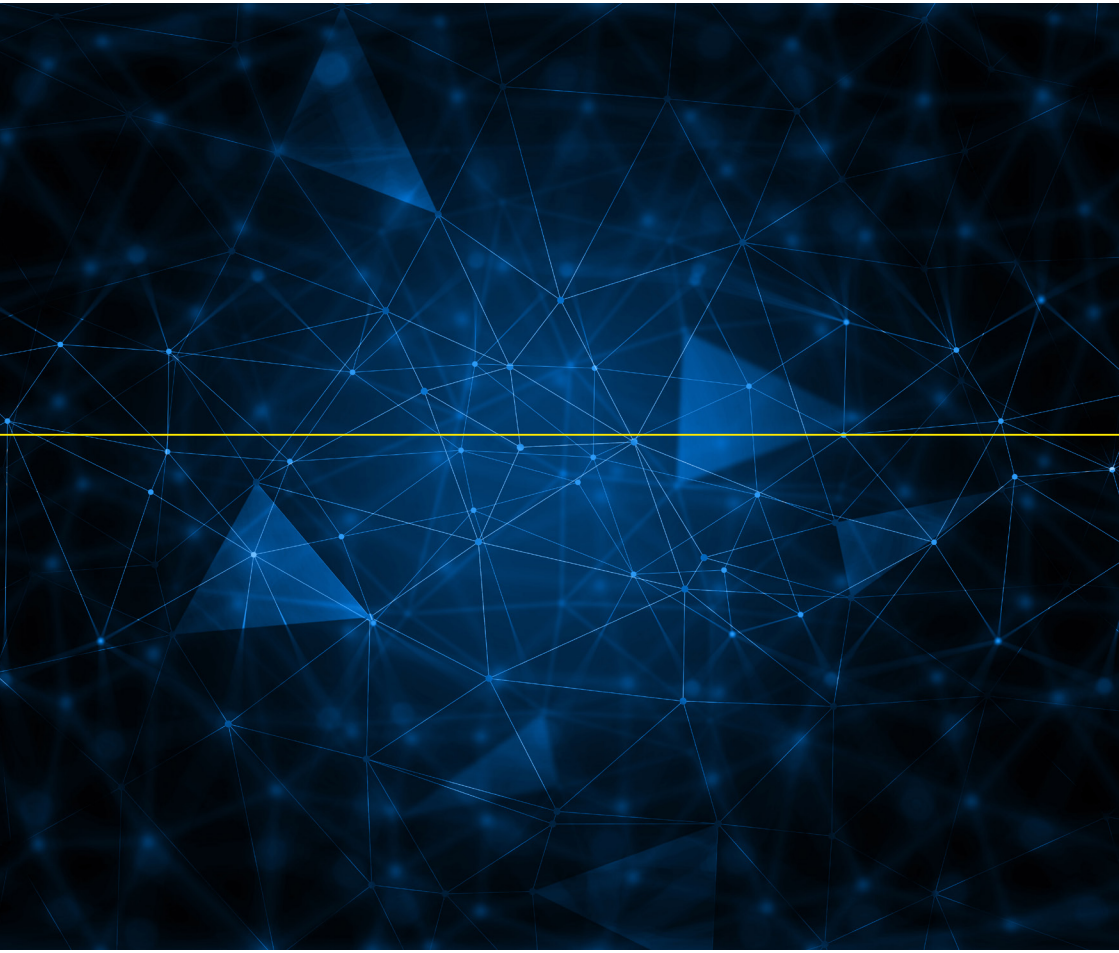

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