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Best regards,

RIMANTAS ŠIDLAUSKAS
Former Ambassador

Director General
Association of Lithuanian Chamber of Commerce
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SECURITY PRECONDITIONS: UNDERSTANDING MIGRATORY ROUTES

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Abstract. This paper is mapping the migratory routes to Europe, details their characteristics and briefs the ongoing changes in the political, economic and social sphere. Though many people think that migration towards Europe is a recent phenomenon, it have been lasting – with diverse intensity – for centuries now, even its main tracks remained almost the same. There are routes that are crowded with migrants at one year and – due to European border authorities’ counter-measurements – are empty a few months later. Considering the adaptability of these migratory routes, detecting, tracking and detailing them are a significant challenge, although, in order to manage the recent crisis, analysis and the appropriate use of the information on migratory routes are essential. This motivated me to briefly delineate the main paths used by the illegal migrants on their ways to Europe. This paper however, does not elaborate on the movements within the EU and the ways connecting the member countries.

Keywords: illegal migration, border defence, Europe, Balkan, Mediterranean, Africa, migrant


JEL classification: J61, K4

1. Introduction

Defending the 11,000 km land and 43,000 km maritime border from the immigrants (Düvel & Vollmer 2011) is an emerging problem for the 28 member countries of the EU, meanwhile, since 1990’s it is also needed to handle the problematics of the increasing legal and illegal migration. Migrants heading to Europe use different, periodically changing routes to reach their destination. The use of these paths and their continuous adaptation to the changes in the environment are influenced by many factors such as the territory’s socio-economic status (e.g. Njaramba et. al. 2015; Rezk et al. 2015; Rezk et al. 2016; Šimelytė et al. 2016), the activity of the authorities in charge, the work of smuggling groups, the visa and migration policy of the concerned countries, active conflicts or weather conditions. These factors can easily modify a route or migrants may also choose a new path to the host countries. We have seen examples for both in the recent years. One certain point is that all those who want to get into „Fortress Europe”, sooner or later will find a path leading to the continent. In the followings I present these main routes for my readers

2. Western and Central African route

These parallel route-systems, which are containing some frequently and less frequently used paths, are used by immigrants from the Western African countries (Mali, Ivory Coast, Ghana, Togo, Benin, Burkina Faso, Senegal, Gambia etc.) and the Central African states (Niger, Nigeria, Cameroon, Chad etc.) (Global Initiative
against Transnational Organized Crime 2014). The route is heading from Western Africa through Central Africa towards Libya. Since centuries, this way was used not only by merchants but by smaller or bigger ethnic groups who had to set sail because of changing circumstances (UNODC Regional Office for West and Central Africa 2012). When colonizing powers created the current African states, migratory movements have decreased significantly, but they could never be stopped (De Haas 2007). In the last decades, these movements have amplified, but mainly towards two directions, Northern African states and the European countries. Traditionally, the trade in different goods - gold, copper, salt, slaves, ivory, European manufactured products etc. - as well as inner and Europe-targeting migratory movements took place on the caravan-routes (Bob-Milliar, GM & Bob-Milliar, GK 2013). The colonizing powers used ports for trade more likely, so the significance of the caravan-routes decreased. Later they were used by only smugglers, immigrants and those who wanted to seek a new job in the Northern African states, for example in Libya or Algeria. Previously, these routes did not have any possessor, nowadays armed groups compete for paths, being able to engage in clashes for controlling them (International Crisis Group 2015).

The first meeting point of Western African migrants (Frontex 2016a; UNODC Regional Office for West and Central Africa 2012) is the town of Ouagadougou in Burkina Faso, where they can reach through Gao (Mali), Agadez (Niger), Dirkou (Niger), Madama (Niger), Tumbo (Niger) to Al Wigh in Libya. From here through Ghatrun, Murzuk, Um Al-Aranib, Sabha, Gharyan, and Tarhouna, they get to Tripoli and other Libyan ports (Altai Consulting & UNHCR 2013; MIGREUROP 2010).

From Gao there is an another way to arrive to Libya, crossing Kidal (Mali), Tessalit (Mali), Borj Mokhtar (Algérie) and Agadez (Mali), Arlit (Mali), Assamaka (Mali), Tinzouauten (Algeria), Guezzam (Algeria) and Tamanrasset (Algeria) (Altai Consulting & UNHCR 2013; Düvel & Vollmer 2011; Global Initiative against Transnational Organized Crime 2014). At the bigger meeting and starting points - like Tinzouauten, Tamanrasset and Agadez – a whole industry have been built upon the migrants heading to North. Some of them also acquire a job to earn the money needed to continue the journey or to work for their fares (Bob-Milliar, GM & Bob-Milliar, GK 2013; MIGREUROP 2010). This means that a part of the migrants settle for months or years before moving on to Europe. Tamanrasset (Algeria) used to have almost 3,000 inhabitants in 1966, with ten percent of sub-Saharan origins. In 1990, fifty percent of the 65,000 residents were sub-Saharan (ECOWAS 2006). Other towns like Agadez (Frontex 2016a), Gao, Nouadhibou or Oujda (Schapendonk 2012) experienced the same rapid evolution. Legitimately practicing “tourist offices” in these cities transport migrants through the Sahara with coaches of twenty-five or thirty passengers in convoys of 160-200 person (Frontex 2016a; Monzini 2003). We also have to mention, that this route is getting more and more dangerous because it is crossing the desert (Brian & Laczkó 2014; De Bruycker, Di Bartolomeo & Fargues 2013) and the activity of AQIM and other Islamic terror organizations (Mujao, Ansar Dine etc.) are deeply effecting migration movements (Frontex 2016a). Radicals often ambush and rob migrants or abduct them for ransom. We have information about other Islamic terror organizations (Mujao, Ansar Dine etc.) are deeply effecting migration movements (fron -

1. I use this term for ECOWAS citizens, who – on the basis of the agreements - can travel easily and relatively cheap and are assured to stay for 90 days in any of the member countries without any visa.
2. This route is mostly used by Mali citizens, who can travel visa-free in Algeria, so they travel under minimal control to the neighboring states. This made the Malian personal documents very popular on the black market. Counterfeiting is a new industry for smugglers. Every year 8-10,000 migrants are caught with fake documents, but much more can enter through the EU’s borders. There is also a huge demand for Libyan documents, which are sold in bulk with refugee and NGO IDs by smugglers.
3. This city is famous, since gold was found in 2013, 700 kms away, in Djado. Since then, almost every migrant tried to mine gold, but only few managed to earn enough money to travel further to Europe. Though 100,000 African migrants crossed the city in 2015, excluding the 10,000 individuals who settled there temporarily or permanently.
4. Although crossing the desert is not easy even with an experienced guide, many depart individually. A lot of them never arrive, their bodies are often found by the following groups. This happened on 31st October, 2013 on the route between Niger and Algeria, where 92 illegal migrants’ (mostly women and children) corpse were found. They got lost during the way through the Sahara.
5. According to a study, between 1996 and 2013 at least 1790 migrants died by crossing the Sahara.
Earlier, illegal migrants used to hide amongst the travellers with visa, using the official air corridors and waterways, but after European states introduced stricter border control system, migrants are trying to enter Europe through the Mediterranean Sea on boats with the help of smuggling groups that active through the western Mediterranean route (De Haas 2007). The significance of the path is growing in conjunction with the number of migrants using them. Between March and August 2013, five thousand western Africans per month have left the city of Agadez to North Africa, while in 2013 half of the registered illegal immigrants in Lampedusa arrived from here (Global Initiative against Transnational Organized Crime 2014). Different estimates claim that approximately 60-80,000 migrants arrived yearly through the Mediterranean, but only two third of them tried to get into Europe. Others state that even 120,000 sub-Saharan immigrants may arrive to North Africa through this way (De Haas 2007). Many may think that it is a huge number, though there are almost 800,000 west-African immigrants in the cities of the European continent, and the amount of the north-African immigrants is over 2,600,000 (De Haas 2007). Those who use the help of smugglers, pay an average amount of 2-3,000 USD between Agadez and the Libyan coast. Smugglers make a great profit from the increasing amount of migrants, their annual income may reach up to 150 Million USD (Global Initiative against Transnational Organized Crime 2014; UNODC Regional Office for West and Central Africa 2012).

3. Western Mediterranean route

This route (Frontex 2015a) is actually the continuation of the western and central African route, used by Algerians, Moroccans and sub-Saharan trying to get into Spain, France or Italy from Northern Africa through the sea. Migrants try to board for Spain mainly in the ports of Almeria and Algeciras. Many try to get to the two northern African enclave of Spain, Ceuta and Mellila (Brian & Laczko 2014).

There are two ways to reach the western Mediterranean region from the western African states. First, via the coast of the Atlantic Ocean, or from the East through the Sahara. The coastal route is favourable for migrants from Senegal, Mauritania, Tunisia, Guinea, Mali, Cameroon, Nigeria, Ivory Coast and Benin, but in the recent years people have arrived to the region from Eritrea, Somalia, Syria, and even from Afghanistan (Altai Consulting & IOM MENA Regional Office 2015). The changes of the amount of migrants via this route are shown in Figure 1.

![Fig. 1. Migrants arriving through Western Mediterranean route 2008-2015](image)

Sources: Frontex 2016a; European Commission DG Migration and Home Affairs 2015

Illegal migrants are trying to reach the Canary Islands from the coast of the African continent with smaller ships and boats, while from Morocco, the migrants arrive to the Spanish territory with the help of individual smugglers or smaller smuggling groups. Smugglers and migrants use the outlying small ports of the western Saharan coast also very often in order to reach the Canary Island quickly. As Western Sahara is very close to the southern
borders of the EU (Canary Islands are located within 100 kilometres to the coast), it became one of the junction points of international migration towards the European countries. For years, migrants arrived through the old caravan routes. The most important focal points were Accra (Ghana), Bamako (Mali), Gao (Mali), Arlit (Niger) and Niamey (Niger), from where groups first reach the city of Tamanrasset in southern Algeria, then via Oran (Algeria), Maghina (Algeria) and Oujda (Morocco) they departed to Western Sahara, Mauritania and Tunisia (Altai Consulting & IOM MENA Regional Office 2015).6

Migratory wave crossing Western Sahara started in the middle of the 1990’s, when migrants, heading to Gibraltar, started to use dinghies increasingly to travel to Europe from the Atlantic ports (De Haas 2007; Fargues & Bonfanti 2014).7 As there is no central government in Polisario controlled territories, and the Mauritanian border guards’ presence is only symbolic, more and more refugees turn to Western Sahara and Mauritania instead of Morocco on their way to Europe (MIGREUROP 2010). This is why the Moroccan government accused the leaders of SADR and Algeria many times for supporting the refugees arriving into Morocco even by destabilizing the country. The concerned parties disavowed these accusations, but have not stopped the flow of illegal migrants. Peacekeepers of MINURSO frequently reported that during a patrol in the desert, they are able to recognize more and more (sometimes a whole caravan of) Black African refugees among the smugglers and Polisario soldiers. The UN have warned the leaders of Polisario to restrain the flood of illegal migrants.

Near Tifariti Sahrawians have arrested a group of Pakistani and Bangladeshi refugees in 2004, who have been imprisoned first, then released at the Mauritanian border (Besenyő 2011). But this single act did not stop the migratory wave. In the years of 2005 and 2006 an increasing number of migrants arrived from Senegal, Gambia, Sierra Leone, Liberia, Mali, Ivory Coast, Ghana, Nigeria, the democratic Republic of Congo, Cameroon, Sudan, and even from the far eastern Asian countries. Instead of the 2005’s 4472 refugees, only between January and September 2006, 24,000 migrants arrived without any legal permission to the Canary Islands. Migrants, who have been deported by Maghreb countries’ offices, usually do not return to their homeland, but settle down on site and try to get into Europe later (Altai Consulting & IOM MENA Regional Office 2015).

Some human rights organizations (UNHCR, Amnesty International and Human Rights Watch) claim that refugees are mishandled by northern African and European border guard members and policemen, violating basic human norms. It cannot be mitigated by the fact that Europe is fed up with the increasingly radicalized Muslim crowds, who should be able to provoke bloody riots in a second from a routine police control, and who are professedly hostile to the recipient states. Because of the last months’ terror attacks and the amount of migrants settled in Europe, Europeans tend to approach illegal migration, which - compared to the growing amount of disadvantages - have minimal benefits from the viewpoint of security.

There is another route joining into the coastal path, starting from Dakar (Senegal) via Nouadhibou (Mauritania) (Altai Consulting & IOM MENA Regional Office 2015),8 Bir-Gandouz (Western Sahara, Morocco), Dakhla (Western Sahara, Morocco), Laayoune (Western Sahara, Morocco), Casablanca (Morocco), Rabat (Morocco), Oujda (Morocco) and Nador (Morocco). This way is mostly used by migrants from Senegal, Nigeria, Ivory Coast and Guinea. The number of migrants on this path was the highest in 2006, when almost 32,000 person arrived illegally to the Canary Islands (Schapendonk 2012). In the next year, this number decreased almost by 60 per cent, due to the Spanish agreement with Morocco, Senegal and Mauritania, according to what these states stop migrants before they reach the Atlantic coast (Frontex 2010a; Urban 2015). Spain provided significant economic support for the affected states. Repatriation agreements have been signed between Spain and source countries in order to

6 Moroccan government started to build a fence system on the popular migratory route at the Algerian-Moroccan border recently. It is not ready yet, but the number of arriving migrants is in constant decrease. Migrants are forced to find an alternative way after the fence is ready.

7 Morocco and Spain are divided by a 13 km long strait here, which made it a popular target of African migrants, trying to get into Europe. Though it is not too wide, the crossing was made difficult by vortex and heavy freight traffic. Many migrants died here in the 1990’s, so Spanish and Moroccan authorities increased the number and efficiency of patrols, this is why migrants have to use longer routes, like the one heading to Canary Islands.

8 Cooperating with Mauritians, Spanish border guards run an office here, as the city is not only a main meeting point for migrants, but a huge market for different fake documents.
send illegal migrants back to their homeland. The Spanish border guarding system was reinforced by setting up
the Sistema Integral de Vigilancia Exterior (SIVE) marine control system (Urban 2015). Spain also joined
the Frontex’s initiative, the „Joint Operation Hera”. This was the first joint marine operation of the European coun-
tries (France, Germany, Netherlands, Italy, Norway, Finland, Portugal and the United Kingdom), starting on 17th
July, 2006 in cooperation with two non-EU member states, Senegal and Mauritania. Though the mission’s man-
date lasted until October 2006, it was extended several times.\textsuperscript{9} The mission headquarters operated in the Canary
Islands, the ships, planes and helicopters were deployed to four zones of the African shores (Zone 1: Western Sa-
hara, Zone 2: Mauritania, Zone 3: Senegal, Zone 4: Cape Verde) in order to prevent illegal entering to the Canary
Islands. Several months before starting the operation, due to the „Cayuco Crisis” (MIGREUROP 2010),\textsuperscript{10} a record
number of illegal migrants (32,000 individuals) arrived to the Islands, and Spanish authorities were not prepared
for them. The primary target for operatives was to return migrants’ ships to the western African shores and to save
migrants from the Atlantic Ocean. Alongside they participated in the identification and interrogation of the arriv-
ing migrants, thereby they could trace smuggling networks in the area. These pieces of information were essential
to fight effectively against illegal migration. The operation was such a success that the number of illegal migrants
have decreased in 2007 to 12,500, then in 2008 to 9,200 and in 2009 to 2,200 individuals. According to Frontex,
Operation Hera was one of the most successful operations of the agency (MIGREUROP 2010) and upon its expe-
riences they started subsequent marine operations (MINERVA, INDALO, POSEIDON, ZEUS, NAUTILUS and
HERMES) in order to fight off illegal migration (Borelli & Stanford 2014; Brian & Laczkó 2014; De Haas 2007;
Frontex 2010b). Additionally, in 2006 the Spanish Border Guards launched “Operation Seahorse Atlantic” having
its HQ in the Canary Islands. Cooperating with Portugal, Morocco, Senegal, Mauritania, Cape Verde, Gambia and
Bissau Guinea, they tried to prevent the docking of migrants’ ships (MIGREUROP 2010).

As Figure 2 indicates, results show that the number of migrants arriving to Canary Islands decreased perma-
nently between 2008 and 2012. In the last year border guards arrested altogether 173 illegal immigrants from
Morocco. We have similar statistics for 2013 and 2014, but recently their number started to increase (Frontex
2015b) and compared to the 2014 data, almost three times more illegal immigrants arrived in 2015. Though
it makes Spanish authorities cautious, several researchers in this field claim that this path has lost its former
significance and migrants rather prefer the western or central African route (Altai Consulting & IOM MENA
Regional Office 2015; Frontex 2016a).

\begin{figure}
\centering
\includegraphics[width=\textwidth]{fig_2.png}
\caption{Migrants arriving by ship to Canary Islands 1999-2015}
\end{figure}

\textit{Sources:} Altai Consulting & IOM MENA Regional Office 2015; UNODC 2013;
De Bruycker, Di Bartolomeo & Fargues 2013; Frontex 2016b

\textsuperscript{9} Hera II from August 2006 to December, and Hera III from February 2007 to April. Later the mandate of the operation was extended
from year to year.

\textsuperscript{10} Cayucos are small fishing ships in Senegal and Mauritania that are bought or rented by migrants heading to Canary Islands. These
ships are good for coastal activities, not for longer maritime routes. Thereby many migrants who left by these ships, never arrived to the
Islands.
Not everyone can afford the high and increasing fees of the marine routes (de Haas 2007), so more and more people try to get into Ceuta and Melilla through land-routes (Altai Consulting & IOM MENA Regional Office 2015; Frontex 2016a). Although they are located in the African continent, these two cities are integral parts of Spain, so when the country joined the EU in 1986, these cities have also become parts of Europe. These cities are significant for more reasons, such as they connect Africa and Europe, the developed western countries with the Third World, Christianity and Islam. Drug smuggling route from Morocco to Spain pass through the cities, too (Castan Pinos 2009). Of course, smugglers have widened their portfolio with the beneficiary human smuggling and organize the trip of migrants to these two enclaves. These young men, mostly in a good condition, regularly hide from Moroccan authorities in the nearby woods. Later, when they are sufficient enough to try to breach, they almost besiege the 6 m high fences with barbed wire around the towns (Castan Pinos 2009; MIGREUROP 2010; Urban 2015).

Though most of them are pushed back, some gets into European territory and immediately apply for refugee status. In 2005, so many migrants tried to climb over the fences around the enclaves, that Spain upgraded these fences like fortresses. The country strengthened its police and border guard units, increased the numbers of patrols, so the number of illegal migrants getting to European territory have significantly decreased (MIGREUROP 2010). This method, however did not stop the migrants, who now are forced to find new strategies (MIGREUROP 2010) or explore new routes (Reitano 2015). Obviously, Spanish authorities are trying to react as soon as possible, so there is a „competition” between migrants and border guards.

Figure 3 shows that today Spain is less luring to migrants. Due to the world economic crisis, the number of unemployed in Spain increased, which made even residents only able to apply for the less desirable jobs. Through this change, jobs that were earlier reserved for immigrants, are filled with locals. Despite this, from 2011 the amount of illegal border crossings from Algeria and the sub-Sahrawian states increased. In 2014, the number of migrants have reached the top, as a result of the simultaneous crises in the African continent (Mali, South Sudan, Nigeria, Chad, and Central African Republic etc.). Due to this, an enormous number of African inhabitants were forced to leave their home, and tried to reach Europe. Despite this, relatively few immigrants arrived via this route (Frontex 2015b; Reitano & Tinti 2015). Figure 3 shows the amount of registered illegal migrants in Ceuta and Melilla between 1999 and 2015.

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11 This amount depends on the distance, but can be between 400 and 2,000 USD.
12 Migrants rather try to get into Melilla, since it is less guarded and fake Moroccan documents are less likely to be identified. Compensating migratory pressure, Moroccans started to build their own fence next to the Spanish defense lines in order to stop the entering migrants. Of course, it is not a perfect solution, border guards must deter migrants in other efficient ways, too. In February 2014, during a “migrant’s siege” Spanish border guards shot at the migrants. 15 people died.
13 Building fences around the cities started in 1993 in Ceuta with a 8,2 km long section, then works continued with the fence in Melilla (10,5 km) in 1996. The building of these fences was supported by the EU almost from the beginning (1995) and almost the 2/3 of the expenses was paid by the international organization. Up to now, it became a complex fortress equipped with modern devices with a purpose to stop migratory wave towards Europe. The EU also supported the fortification of more Maghreb states’ border guards through MEDA (European Neighborhood Partnership Instrument) program in order to make illegal border crossing more difficult.
14 One of these strategies hide amongst the cca. 20,000 Moroccans (portadoras, mujeres mulas) who work in these two cities or try to get on the trucks heading to the city.
15 This constitutes a 15 per cent growth compared to 2013 data...
4. Central Mediterranean route

Experts believe that this route (Frontex 2015a) transports the biggest amount of immigrants to Europe - 60 per cent of the total amount (Frontex 2015b; Kuschminder, De Bresser & Siegel 2015). This route leads from the northern African Libya through the Mediterranean Sea towards Italy and Malta. Immigrants arrive to the Libyan meeting points from the sates of the Horn of Africa (Somalia, Eritrea, etc.), the western African states and - by aeroplane – from Asia (Altai Consulting & UNHCR 2013; Brian & Laczko 2014). Until Kaddafi’s regime was stable, Libyan economy provided solid livelihoods for many migrants, and the state - due to agreements with European countries - controlled and limited migration towards Europe (Bob-Milliar, GM & Bob-Milliar, GK 2013; Borelli & Stanford 2014; Global Initiative against Transnational Organized Crime 2014). This big state is rich in mineral resources, but has a small population and lack of skilled workers in many fields, that made it a popular destination for immigrants who were easily able to have a job. Those, who wanted to move forward to Europe, could collect money for the future trip (Bob-Milliar, GM & Bob-Milliar, GK 2013). In the last years, more and more unskilled or weakly trained migrants have arrived to the country, whose job opportunities did not live up to the expectations, which generated a serious tension between Libyans and immigrants (Altai Consulting & IOM MENA Regional Office 2015; De Haas 2007; frontex 2010a; frontex 2015b).

Though many think that all African migrants are trying to get into Europe, this is not true. Most of them do not want to leave the continent, but are trying to get along in the northern African states where living conditions are better than in their homeland. By the way, this suits to the recent regional economical migration processes (Bob-Milliar, GM & Bob-Milliar, GK 2013; Global Initiative against Transnational Organized Crime 2014). Every year, 65,000 - 120,000 immigrants arrive to these states. 20-38 per cent of them move towards Europe, the others stay in North Africa (mostly in Libya) (De Haas 2007). Despite, it seems that many are trying to reach Europe and nobody is willing to stop them, because the Arab Spring tossed the country into chaos: separate militant groups fight each other for power in the destabilized country (Frontex 2015b; International Crisis Group 2015; UNODC Regional Office for West and Central Africa 2012). This uncontrollable situation attracts illegal migrants who are trying to get to the Egadi Islands, Pantelleria, Lampedusa, Linosa, Sicily, Malta or to the continental shores using different kinds of boats, most of which are not suitable for maritime shipping. Starting from the coasts of Al-Zuwarah, Zliten, Zawiya, Tripoli and Benghazi, smugglers tow these significantly over-

\[\text{Sources: Altai Consulting & IOM MENA Regional Office 2015; UNODC 2013; Migreurop & Gadem 2015}\]
whelmed and weakly equipped boats into the open sea and let them suffer their fates (Altai Consulting & IOM MENA Regional Office 2015; Global Initiative against Transnational Organized Crime 2014; Monzini 2003). A part of them sink before reaching the shores. This makes authorities not only to guard maritime borders, but also to save migrants struggling for their lives out from the sea (Altai Consulting & IOM MENA Regional Office 2015; Human Rights Watch 2015; van Reisen, Estefanos & Rijken 2013; Reitano 2015). The high number of shipwrecks are also linked with smugglers, who do not teach migrants any navigation skills or provide any maritime experience (Global Initiative against Transnational Organized Crime 2014). In the last one and half year the role of Egypt became more significant as a meeting point and as a direct starting point for Europe (Altai Consulting & IOM MENA Regional Office 2015).

Despite its hazards, the Central Mediterranean route is favoured by African migrants, because of the proximity of the European shores, so the number of illegal migrants is permanently increasing (Fargues & Bonfanti 2014; Frontex 2015b). Between 2001 and 2011, 190,425 illegal migrant were registered in Lampedusa, whose 60 per cent arrived from Libya (Altai Consulting & UNHCR 2013). In 2008 almost 40,000 migrants arrived to Italy (mostly to the island of Lampedusa) and Malta from Nigeria, Somalia and Eritrea. This crowd almost disappeared in 2009 due to the aforementioned reasons, so the Italian border guards could take a breath (MIGREUROP 2010). This peaceful period ended in 2011, when following the Arab Spring 64,000 illegal migrants arrived to Europe via this route. Only between January and March 28,829 Tunisian refugees arrived due to the Arab Spring (Düvel & Vollmer 2011; Frontex 2012). Most of them did not flee from direct armed conflict, but tried to get into France as economic migrants. Stopping migrants’ wave, Italy and Tunisia signed an agreement, so the number of the migrants started to decrease slowly, but in 2012 still 28,000 Tunisian were registered in Lampedusa by the Italian authorities (Altai Consulting & UNHCR 2013; Frontex 2013; Monzini 2013). Despite this, more than 40,000 refugees arrived to Lampedusa, Sicily and Malta from other African states (Fargues & Bonfanti 2014; Monzini 2003). After the fall of the Kaddafi regime, number of migrants have decreased, then in 2013-2014 it started to increase again. In 2014, 170,664 immigrants arrived only to Italy, which means 277 per cent increase comparing to the data of 2013. This was a serious challenge not only for border guards but for the government and local inhabitants, as well (Frontex 2015b). Perhaps it is due to the European Union’s maritime border guarding operations that the number of migrants arriving through the sea have decreased by almost 20,000 individuals in 2015. The trends of illegal migrants arriving through maritime route to Italy is shown in Figure 4.

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17 Saving migrants became a special branch of industry, as the camps for illegal migrants are controlled by different militias and armed groups – even radical Islamists – instead of the weakening central government. Neither the UN, nor the NGOs have insight to most camps or any ability of supervision. Migrants rescued from the sea are transported directly to these camps, and let out only in that case if they come to an agreement with the supervising group or the smugglers in connection with them on the ways and prices of further travelling. Even though through this method, smuggler units have a secured income from migrants, many time they attack or kill the individuals.

18 The number of illegal migrants increased significantly in the country. According to the data of April 2015, the biggest groups were Syrians (134,089), Sudanese (25,055), Somalis (6,524) and Iraqis (6,449). A growing number of these groups try to ship to Italy. In 2014, 9 per cent of the arriving ships were from Egypt.

19 Italians notice the migratory wave regularly, even though they are considered as a transit country. Their country is only a “gate to Europe” and most migrants want to travel further inside the continent where their communities (e.g. Syrians in Sweden, Turkish and Kurdish in Germany, etc.) are well organized and are able to support their integration. It is proven that Italian charity organizations help migrants to leave Italy without registration, so neglecting the Dublin regulations, migrants start registration procedure in other European countries. Affected states try to find an adequate response against the renitent Italy.
As Figure 5 indicates, Malta faces the same problem.\textsuperscript{20} Between 2002 and 2012 16,645 migrants arrived by approximately 398 ships to the country. There was a significant decrease in 2010, but due to the Arab Spring, migrants’ number increased again. As a result of the Operation Mare Nostrum, their number relevantly decreased. Due to the new migration policy of the country since 2015, less immigrants arrive or more refuse the registration and leave. This might be a consequence of the fact that more and more Syrian arrive with fake documents bought from Eastern European criminal groups. A part of them are stopped by Maltese authorities - even more get imprisoned for falsification - but the wealthier Syrians can quickly go further through the help of smugglers. Malta should be mentioned as a lucky state, as migrants do not consider it as a final destination.

\textsuperscript{20} Migrants arrive to the island by ships and by planes as well.
As Figure 6. represents, the same trend can be observed in the entire Central Mediterranean route, proving more aggressive actions, which made migrants try other routes to get into the continent (European External Action Service 2016).

A significant part of the migrants come from Libya and Egypt to both countries. Tunisia as a departing point have lost its former role (Altai Consulting & IOM MENA Regional Office 2015; Reitano 2015). Among immigrants from Libya, more and more individuals come from Eritrea, Syria and the Sub Saharan countries (Frontex 2015b). Some estimations claim that a migrant on his way from Agadez to the Libyan coast, pays 2,000-3,000 USD to smugglers, but getting into Europe may even cost 10,000 USD (Global Initiative against Transnational Organized Crime 2014). Same amounts are paid by migrants coming from Egypt by ships (Altai Consulting & IOM MENA Regional Office 2015).

The states of the EU react the same way as earlier: in order to suppress migrants’ wave they restrict legislation, strengthen border guards or use counter-terrorism measures. In spite of their enhanced work, they could reach only limited results (Shelley 2014). This is why the EU concentrates increasingly on the common solutions, especially in the aspects of security policy. At the end of 2014, Italy was the leader of the EU presidency. The state proposed the strengthened and extended mandate of the common European border guarding operation (EUBAM Libya) launched in 2013 (European External Action Service 2015) in order to be able to take more determined actions against smugglers in cooperation with the Libyan border guards (Reitano 2015). Unfortunately, this cooperation was not without conflicts. Libyan border guards were originally from the militia fighting against Kaddafi, with a hostile attitude to the European border guards and policemen. They had to be relocated to Tunisia for their safety (Parkes 2014). Finally, due to Italian pressure, in November 2014, the operation

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21 According to the data from 2014, less migrants arrived to Europe via the Central Mediterranean route, but at the same time, Eastern-Mediterranean route became more frequently used.

22 The decisions introduced by the Tunisian government (setting up checkpoints, imprisonment for illegal border crossing, etc.) decreased the number of incoming migrants radically, who rather chose Libya, so in the future, Tunisia is going to have a transit role.

23 The biggest group of registered illegal migrants is Syrian (39,651 individuals – 23 per cent of all), followed by Eritreans (33,559 individuals – 23 per cent) and Sub-Saharan (24,672 – 14 per cent).

24 The civil operation (EU Integrated Border Management Assistance Mission in Libya) was launched in 22. May 2013. In order to fight illegal migration and strengthen Libyan border defense, with a two-year mandate that has been extended for another two years in 2015. The annual budget of the mission was 26M EUR. The mission’s tasks are mentoring, training and supporting Libyan authorities, they do not have other operative activity. Originally, it was set up in Libya, but for security reasons (such as the appearance of ISIS) it was relocated to Tunisia, and the international staff was significantly dismantled (17 individuals remained from the original 57 until the end of 2014, which was further cut to 3 individuals until March 2015).
Frontex Plus (sooner renamed to Triton) have been launched with the participation of Finland, Spain, Portugal, Iceland, the Netherlands, Latvia, Malta, France, Romania, Switzerland, Germany, Norway, Sweden, Austria and Poland (Llewellyn 2015). This new operation was launched with seven ships, two planes, one helicopter and a monthly 2, 9 million Euro budget (Llewellyn 2015). The main task was the border guarding alongside Italy and Malta and the participation in the rescue of migrants (Frontex 2015b). Five analytical groups were organized with a task to map different smuggler networks using covert information and open source intelligence (‘Frontex launches Joint Operation Triton’ 2014). Although the operation reached limited results, it could not stop migrants’ wave. Supplementing the needed participation and mandates, a new operation EUNAVFOR Med started in May 2015 with 22 participating nations (European External Action Service 2016). This operation had a mandate not only to seek smugglers, but to locate, supervise or confiscate ships. As it was planned, they are able to take actions against smugglers not only in international waters, but with UN mandate, even in Libyan territory. They are not only fighting against smugglers and illegal immigrants, but rescue all those who got into trouble on the sea (Frontex 2015b; Human Rights Watch 2015; International Crisis Group 2015). During operations, until the end of 2015, 46 smugglers were captured and 67 ships were confiscated, so the smugglers activity was limited at Libyan waters. According to the mission commander, later it will be necessary to act directly against smugglers, but it still have political and legal barriers (European External Action Service 2016). EU created EUROSUR, too. This is an integrated reconnaissance and intelligence system for monitoring migrants and smugglers crossing the Mediterranean Sea (Brian & Laczko 2014). The increase in the number of immigrants, unfortunately means an increasing number of drowned individuals during illegal border crossings (Brian & Laczko 2014). Some experts of migratory trends claim that five to ten per cent of the boats departed from Libya sink on their way across the sea (Altai Consulting & UNHCR 2013). A report of the Bilgi University of Istanbul states that 34,000 migrants died between 1989 and 2009 in the Mediterranean and the Aegean Sea (Borelli & Stanford 2014). According to a UNHCR report, at least 35,000 illegal immigrants have drowned only in 2014 during their way to Europe. Only in the second week of September more than 500 migrant drowned. According to an independent Italian organization, Fortress Europe’s research, 21,439 migrants died between 1998 and 2014 in the Mediterranean Sea. The organization highlights that the chance for drowning is nearly 2%, 1% (Del Grande 2016). The International Organization for Migration estimates that the number of lost individuals increased up to 22,400 for May 2015 (Human Rights Watch 2015). This growth is significant compared to the data of 1998-2002 when this number was only 0,4% (Fargues & Bonfanti 2014) or to 2003 (almost 1%) (Monzini 2003). According to another study, thirty out of every thousand migrants, who arrive across the sea, lose their life, so the chance for drowning can reach up to 3% (De Bruycker, Di Bartolomeo & Fargues 2013).

One of the most notorious event was in October 2013 when more than 360 migrants died at Lampedusa as their ship’s motor burned out. There were more than 500 migrants on board in the small (20 metres long) ship. Most of them died by trying to escape (Brian & Laczko 2014; Global Initiative against Transnational Organized Crime 2014; van Reisen, Estefanos & Rijken 2013). Due to the enormous international and domestic pressure, the Itali-

25 The operation was started by Italians, Maltese and Icelanders with limited activity, in which 65 officers took part with 12 military vehicles (naval and air). Other countries joined later.

26 Smugglers take an advantage of cramming more people in the ships than it would be safe, or not giving them sufficient fuel or food. After launching the ships, they report the ship to the authorities, who then are forced to rescue on their own cost. It may happen that operatives arrive too late and the ships are sunk.

27 According to the organization, much more people die when they try to cross the sea.

28 Also known as „Operation Sophia“

29 These are the registered cases. According to the organization, much more people die when they try to cross the sea.
The Italian government launched operation „Mare Nostrum” on 8th October 2013, in order to secure the Mediterranean Sea and to decrease the chance of maritime catastrophes (Reitano 2015). During the operation, five vessels with 1,500 seaman were in patrol in international waters between Northern Africa and Sicily. The operation was supported by two submarines, five aeroplanes, two helicopters and drones. The Slovenian government provided one ship to help the Italian Navy (Llewellyn 2015). The total cost of the one year mission was 114 million euro, from this 30 million was provided by the EU. Italian sailors rescued 160,000 migrants, escorted more than 600 ships to safe haven, confiscated nine smuggling carriers, captured and prosecuted 330 smugglers. The mission ended in 31st October, 2014. Its mandates were taken by “Operation Triton” controlled by Frontex (De Bruycker, Di Bartolomeo & Fargues 2013; Frontex 2015b; Kuschminder, De Bresser & Siegel 2015). “Mare Nostrum” was successful, because in winter 2013 and spring 2014, due to the operation of the Italian Navy, less people lost their life during the sea-route. Despite this, many critics mentioned that its success lead to the increasing number of illegal migrants, because smugglers towed their overloaded and poor-conditioned ships near to the Italian navy vessels and let them rescue migrants (Altai Consulting & IOM MENA Regional Office 2015; Fargues & Bonfanti 2014). Partly this, partly different causes explain why the operation was finished at the end of 2014. Living up to the need for international control, EU launched „Joint Operation Triton” in November 2014 (Human Rights Watch 2015). This operation was a continuation of „Mare Nostrum” and the former Frontex operations (Hermes, Aeneas) (Llewellyn 2015). Though the expenses and resources were divided between the participant countries, the new operation’s abilities were significantly less than a common EU operation's mandates. Besides Triton, Italy initiated individual operations, (Llewellyn 2015) and similarly did other European countries (Germany, France and the United Kingdom) with the supervision of merchant ships. Simultaneously, NGOs and civilians actively helped in rescuing people. Despite these activities, still many migrants die in the waves, in April 2015, 900 individuals lost their life in a weekend (Altai Consulting & IOM MENA Regional Office 2015; Llewellyn 2015). The trends of the numbers of drowned migrants in the Mediterranean Sea are indicated in Figure 7.

According to a report of Frontex in 2015, the biggest migratory waves are expected to arrive via this and via the eastern Mediterranean route, so the border guards must be reinforced (Frontex 2015b). Last year’s events confirmed the forecast, since there was a significant increase in the traffic on this two routes. The central Mediterranean route lost its leading position and the eastern route turned out to be important (European External Action Service 2016).

The Italian coast guards have cca. 300 ships in 3 naval and 113 civilian ports. Considering migratory challenges, a special unit have been set up in Lampedusa in 1994, equipped with modern rescue ships. Unfortunately, these ships can only carry a few people, which is disadvantageous in a rescue action. This was proven on 8th February, 2015, when 22 migrants died in an action, because ships needed seven hours to find the migrants in the sea. Seven of them were drowned by then. After rescuing survivors, it took 18 hours for them to get back to Lampedusa. During this time, further 15 individual died despite the medical help. Considering this experience, Italian coast guards decided further improvements.

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Fig. 7. Numbers of drowned migrants in the Mediterranean Sea 1998-2015

Sources: Human Rights Watch 2015; Del Grande 2016, Altai Consulting & UNHCR 2013; Brian & Laczo 2014; UNITED Against Refugee Deaths 2015, Missing Migrants Project

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5. Eastern African route

This route does not lead directly to Europe, but to the northern African region, where migrants come from Eritrea, Ethiopia, Djibouti and Somalia via Sudan, Egypt and Libya. Trying to reach the European continent - mostly using the Central Mediterranean route, migrants from eastern-Africa gather (Global Initiative against Transnational Organized Crime 2014). The route launches in Somalia, where migrants cross the city of Wachalalah at the border, then firstly get to the Ethiopian capital, Addis Ababa, where they can choose between three different routes to Khartoum. The first one leads from Addis, crossing the Sudanese borders at Metema, via Gellaba where they are placed in nearby refugee camps. When meeting the sufficient conditions they leave for Khartoum. The second one leads from Addis to Humera in Sudan, from where migrants are transported directly to the capital. The third way is the most secure one, but it is only for Ethiopians, since an agreement between Ethiopia and Sudan allows them to use the airways to Khartoum and are allowed to stay for two months by tourist visa. Researchers estimate that 50 to 100 Ethiopian migrants cross the Sudanese border using this opportunity (Altai Consulting & UNHCR 2013).

Eritrean migrants start from Asmara and Massawa via Tasseney and Guluj to the Sudanese Kassala and El-Kedaref, then to Khartoum (van Reisen, Estefanos & Rijken 2013). From here they move on with the help of smugglers through the Sahara, crossing Dongola and Uweynat, until they reach Kufra in Libya (Altai Consulting & UNHCR 2013). Most of them spend months or years in the UN controlled refugee camps until they are ready to move on. Earlier, some migrants arrived through North Darfur (Nyala, El-Geneina and Miliit), but after the Darfur genocide, the route became almost abandoned, only some smuggling groups used it (Kuschminder, De Bresser & Siegel 2015). In Libya, one big transit- and collecting point was Kufra, where monthly ten to twelve thousand migrants were stationed in the city. Due to the violent affairs between the Tebu and Zway tribes, their amount was decreased to 1-3,000 individuals (Reitano 2015). Besides, another reason is that – thanks to the increased military presence – smugglers bypass the city, and try a new route via Rebiana, Tazerbo and Ajdabiya (Altai Consulting & UNHCR 2013). By the way, the ten days long Khartoum-Kufra route is the most dangerous, because migrants have to cross the Sahara desert. Another alternate path crosses the Egyptian border at Jaghbub from Khartoum to the Libyan Tobruk via Dongola. From Tobruk, migrants can easily reach Libyan ports. On the basis of the visa-free travel, a part of Sudanese migrants fly to Cairo, then try reaching Libyan ports via Salloum-Um Saad and Tobruk. Syrians use the same way combined with bribing Egyptian customs officers to get into Libya (Altai Consulting & IOM MENA Regional Office 2015).

Nobody knows, how much does it exactly cost for a migrant to get to Libya or Tunisia, but there are many different estimations. According to the Regional Mixed Migration Secretariat’s estimates an amount of 1,000 USD must be paid for smugglers and 1,000-2,500 USD more for crossing the Mediterranean Sea (Regional Mixed Migration Secretariat 2013). As the above mentioned regions send only 2,2% of migrants, some researchers expect the increase of this rate for the upcoming years, at least for the fact that there are millions of hopeless people living in the Eastern African refugee camps, ready to leave for Europe at every minute (Martín & Bonfanti 2015).

31 Transporting Eritrean migrants is almost a monopoly of the Rashaida Arab tribe, who sometimes kidnap them, for ransom. These migrants can only continue their travel after they paid. To maintain the profitable business, 30-50 abductions are executed in a month. The real number might be higher, as migrants have no interest in turning to the authorities. An average of 5,000 Eritreans arrive to Sudan every month via this route, so the mentioned tribe has a remarkable income from smuggling.

32 I spent a lot of time in the area of operations during my service as a logistics advisor in Darfur mission of the African Union in 2005. Happened once, that in the nearby the city of Milit in the South African sector, we met a crowd of 2-300 individuals travelling with Toyota pick-ups and other trucks, heading to Chad. Our Sudanese interpreter told me that they were a group of Somali and Ethiopian migrants, guided by the local Zaghawa tribe. The local interpreter claimed that more groups cross the area every week, but, due to the recent events, their amount is in decrease. I met similar groups at the Chadian border, in the city of Tine, where AU also had a military camp under my responsibility, so I was not a rare visitor in that region.

33 There are more and more small armed conflicts between Tuaregs and Tebus, who make an increasing amount of profit from smuggling. Besides, they earn new territories against other tribes in the “Salvador triangle”.
6. Apulia (Puglia) – Calabria route

This route is leading across Egypt and Turkey towards Italy and Greece. Most of the migrants come from Asia (Afghanistan, Pakistan, Bangladesh and Syria) and enter the Schengen area at the Turkish-Greek border (Brian & Laczko 2014; Monzini 2003). A significant part of the refugees lived in Greece for years, but due to the world economic crisis and the Greek political and economic situation, they try to reach the inner parts of Europe. Migrants use mostly maritime routes by ships of different smuggling networks to get to Europe (Frontex 2015b). Smugglers’ tools can be very different: everything occurs from fast and modern yachts until inflatable boats and dinghies. Organized smuggling groups transport migrants with fast ships, hidden in the low deck, in order to avoid helicopter patrols’ attention. These ships are formed to be able to carry as many people as it can. Because of the design, the crowd travels very uncomfortably, but safer than it would be in a smaller ship. Egyptian smugglers have a different method. The human traffickers of frequently used routes apply liners or freights surrounded with smaller fishing boats. As soon as they see the European coast, migrants are transferred to the smaller boats that disembarks them in different places, the “mother ship” returns to Egypt for new passengers (European External Action Service 2016). In this case, the chance for being caught is much smaller, because border guards cannot efficiently intercept – if they can even discover – migrants fleeing in different directions. Anyone who reach Italian shores, is able to apply for refugee status.

Migrants’ primary goal is the South Italian regions of Apulia and Calabria, which are favourite destinations of illegal migrants since the 1990’s, especially for those who come from Balkan states (Monzini 2003). Through Apulia region migrants arrive to Italy from Greece by crossing the sea, besides routes from Montenegro and Albania by crossing the Otranto Channel are also important to mention. Calabria is a target for those who come from Egypt and Turkey to Italy. The number of arriving immigrants increased from the mid 1990’s, but turned to slow decrease from 2002 until 2011. After the Arab Spring it started to increase again, despite that many migrants chose the less risky Western Balkan route. After the outburst of the Syrian civil war, more and more migrants used this path, especially Syrian refugees from Pakistani, Egyptian and Turkish refugee camps (Reitano 2015). In the recent two years, the number of migrants increased to such an extent that Turkish smugglers in the port of Mersin started to use bigger ships - that are capable to carry 600 passengers in average. Figure 8 shows us the development of migrants using the Apulia - Calabria route.

![Fig. 8. Migrants arriving via Apulia-Calabria route 1999-2015](chart.png)

Sources: Fasani 2009; Monzini 2003; De Bruycker, Di Bartolomeo & Fargues 2013; Ministero dell’Interno 2014; Ministero dell’Interno 2015

34 This is partly a consequence of the stabile historical and social background of organized criminal groups (e. g. ndrangheta) in this region. Additionally, they take part in human and drug smuggling, prostitution and other different illegal activities.

35 Many refugees arrive via this route from Somalia, Eritrea, South Sudan and the Democratic Republic of Congo.

36 According to the different reports, the biggest group of immigrants in Europe are Syrians, whose amount is growing rapidly (similarly to the number of Eritreans).
Local smugglers demand 6,000 EUR from Syrians who try to get to Europe, but these refugees may not hope mercy from the thundery sea, rivalling smuggling groups or the border guards of European countries.\(^{37}\) Recently, a new threat appeared: the Islamic State (IS). It does not only realize profit from smuggling, but there are demonstrable signs of their intention to hide their own people between refugees to get them into Europe.

7. Western Balkan route

This is the third busiest route (Frontex 2015a; Frontex 2015b), where alongside contrabands (such as weapons, drugs, fake branded goods etc.) we can mention two main groups arriving to the EU (Shelley 2014). Firstly, western Balkan states’ residents (from Albania, Serbia, Bosnia-Herzegovina, Kosovo, Macedonia and Montenegro) and secondly, Asian or Middle Eastern migrants who arrive through the Bulgarian-Turkish and Greek-Turkish borders, then trying to get to Austria, Germany or the northern countries via Hungary (Kuschminder, De Bresser & Siegel 2015). Besides, this route manages the most Syrian and Somali migrants. Those who arrive to Macedonia, smugglers transport them by taxi cabs to the Serbian borders. For a long period this route was mainly used by illegal migrants from West Balkan states who were heading to European countries (Frontex 2015a),\(^{38}\) but recently these states’ citizens (except Kosovo) can travel without visa in the EU, so their number decreased significantly. Simultaneously, number of illegal migrants from Kosovo (especially Albanians) increased. In the beginning of 2014, monthly 1,000 Kosovan arrived via this route, since September this amount increased to 9,000. Some think that the trend changed in connection with the rumours that France wanted to exclude Kosovo from the list of safe countries. In that case, Kosovan economic migrants could earn refugee status in western countries (Frontex 2015b). Later it was revealed that the assumptions were a hoax and France never thought about the step above, so Kosovans do not get refugee status but will be sent back as soon as possible.

The Hungarian government had serious problems with the growing crowd of arriving migrants. In 2009 they were coming mainly from Kosovo (Frontex 2010a), but in 2012 migration became more „international”. The next year an unprecedented migration crisis developed. Almost 20,000 immigrants entered Hungary illegally and applied for refugee status in 2013. Most of them were Kosovans, but there were Pakistanis, Afghans, Moroccans, Algerians and Sub-Sahrawians. This was the moment when Hungary strengthened its border guards and introduced a new regulation on refugee status applications from 1\(^{st}\) January, 2013 (Frontex 2014). This was not followed by a radical decrease in illegal migration. In July 2013, 130 illegal migrants were caught on an average day. They were taken to registration points, from where they immediately headed to Austria or Germany and applied for refugee status in those countries.\(^{39}\) The number of migrants decreased appreciably in the second half of the year, but since 2014 there was a significantly emerging number of refugees from Turkey. Hungarian authorities tried to reduce it with different instruments.\(^{40}\) According to a Frontex report 43,357 illegal migrants were registered in 2014, that means a significant, 46 per cent increase. Illegal migrants were mostly Kosovans (22,059 individuals), Afghans (8,342 individuals) and Syrians (7,320 individuals).

The increase in the number of migrants tended to be permanent in 2015, when most of them arrived via Greece and Hungary, and kept these governments’ administration overwhelmed. As Figure 9 indicates, in 2015, eight-

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\(^{37}\) Smugglers only care about the profit. That is why they are trying to cram as many migrants as possible into big but old ships that are not eligible for maritime shipping. Many times the Automatic Identification System (AIS) is turned off, so the ship cannot be recognized electronically. Many times it happens that smugglers turn on autopilot and leave the boat and refugees on their fates. They can only hope in survival.

\(^{38}\) In 2012, approximately 33,000 refugees arrived from Western Balkan states to Europe. This is 53 per cent higher than the year before (2011), and means 12 per cent of all refugee applications in EU countries. I also have to mention, that arriving migrants are not likely to return after their visa expires.

\(^{39}\) There is no such big or well organized Islamic community in Hungary which could provide stable background for migrants, so most of them do not want to stay even temporarily. Unlike Hungary, we can find strong networks in Austria, Germany or Benelux states, which often help migrants’ settlement for a short period of time, and continue their travel to their real destinations (northern states, United Kingdom, etc.).

\(^{40}\) Different provisions (blockades, restrictions of border control, suspending visa-free travelling, deportation of illegal migrants, etc.) cannot stop migratory waves, but they have role in forming the migratory routes. The direction of the route might change and thereby migratory pressure on a country can be significantly decreased. These results, however are only temporary, and changes can be influenced by decisions of the neighboring states.
een times more migrants arrived via this route than in the previous year (Frontex 2015a).

The development of the number of migrants between 2009 and 2015 is shown below.

![Graph showing the number of migrants arriving via the Western Balkan route from 2009 to 2015.](image)

**Fig. 9.** Migrants arriving via the Western Balkan route 2008 - 2015

*Sources: Frontex 2015b; Frontex 2016b*

8. East Mediterranean route

This route is frequently used by illegal migrants who are leaving Turkey and via Greece, Bulgaria and Cyprus, trying to get into the EU. Since 2008 this has been the second most popular direction – this way provides 18 per cent of them (Brian & Laczko 2014; Kuschminder, De Bresser & Siegel 2015) – and their number grows permanently (Schapendonk 2012). Smuggling networks, operating mainly in Istanbul, Izmir, Edirne and Ankara, have members of various nationalities (Syrians, Somali, Afghan, Pakistani etc. alongside Turkish) (Reitano 2015). Most of the migrants arrive from Syria, Somalia, Afghanistan and Pakistan, and in the recent years, the rate of Sub-Saharan increased (Schapendonk 2012). Thanks to the visa-free travel, these countries’ citizens can legally travel to Turkey, from where Africans can go further by the help of smugglers. Their amount reached 40,000 individuals in 2008 and 2009, giving forty per cent of arriving migrants to Europe. Since Greek border authorities patrolled carefully and regularly, migrants chose terrestrial ways instead of the highly checked sea routes. In the summer 2010, migrants arrived through the Turkish-Greek border river Evros in a bigger amount than ever before. The passengers were mostly from Iraq and Afghanistan and their number increased permanently (Kuschminder, De Bresser & Siegel 2015). In October 2010, at least 350 illegal migrants were caught by the Greek border guards near the city of Orestiada. As the situation developed, Greece asked for the help of the common European authority, the Frontex in order to stop migratory wave (Frontex 2011a). Frontex sent a Rapid Border Intervention Team (RABIT) in November 2010 in order to help Greek authorities (Dimitradi 2016; Frontex 2010b; Frontex 2011a; Frontex 2011b). It was only a temporary solution as during 2011, more than 57,000 illegal migrants crossed the Greek borders. Greek authorities introduced new, stricter measurements and launched the Operation Aspida. Within the framework of the operation, police units and modern devices (thermos cameras, night vision gears, etc.) were deployed to the Evros region, and a 12.5 km

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41 The special quick response unit of the Frontex contains 672 border guards and policemen from 27 EU member countries. A group of 191 individuals were sent to Greece, who served from November 2010 to 2nd March 2011. on the Turkish-Greek border and intercepted 11,809 illegal immigrants and 34 smugglers. At the end of the mission, decrease in the number of arriving migrants reached 76 per cent.

42 Both Greek government and Frontex command were satisfied with the results of RABIT unit. The organization proposed to set up a same unit with 1,500 individuals in the beginning of 2016. Important detail of this proposal is that the newly formed unit is deployable to every member country’s border, even without the permission of the concerned state. Due to political and legal difficulties, it is still not applicable.

43 In order to quicker the progress, camps were established for intercepted illegal migrants, their deadline for residence was limited, as well as the refugee applications procedure. Migrants, who were not willing to move into camps, were allowed to stay for only 7 days in the country, instead of the earlier 30 days.
long wall was built near Orestiada in order to limit migrants’ movement. The authorities controlled the ports of Patra and Igoumenitsa intensively, keeping migrants under pressure. Adapting to the changes, the migrants left for Italy and other European countries. As a result of the operation, border guards realized a significant decrease in the number of illegal migrants in Greece (Frontex 2014). Despite these efforts, there many people stayed illegally in the country, so another operation „Xenios Zeus” was launched to detect and expel illegal migrants (Frontex 2013). Greek and Turkish border guards started a closer cooperation, resulting in a decrease of the number of migrants to 6,000 (Frontex 2015b). In 2014, migrants rather used Bulgarian-Turkish border (Reitano 2015) or tried to enter the EU in marine routes instead of the Greek territories (Brian & Laczko 2014; Fargues & Bonfanti 2014). Indeed, there were migrants who tried to travel to Italy directly through the sea from Turkey, and many European country highlighted that many arriving passengers had fake documents at international airports, too. Despite the introduced measurements, the number of migrants increased in 2013, indeed, Bulgaria was overran by Syrians who came through Turkey. This situation deteriorated in 2014, as compared to the previous year, twice as much migrants arrived, mostly by ships through the Aegean Sea (Frontex 2015b). The increase in the number of migrants coming via the East Mediterranean route in 2015 surprised everyone, as compared to the previous year, indicated in figure 10, sixteen times bigger crowd arrived. This was a number, which no one was expecting before (Frontex 2015a).

**Figure 10.** shows the development of the number of migrants on this route between 2009 and 2015

![Graph showing number of migrants 2009-2015](image)

**Fig. 10.** Migrants arriving via the East Mediterranean route 2009-2015

*Sources: Frontex 2015a; European External Action Service 2016; Frontex 2016b*

We have diverse data on the migrants’ expenses, but according to estimates, the route costs approximately 2-3,000 EUR for those who come from the East and West African countries, and 1-1,500 EUR for North-Africans to travel from Turkey to Greece and an additional 2,500-3,000 EUR for being smuggled into Italy (Kuschminder, De Bresser & Siegel 2015).

---

44 In this operation 1,881 policemen were sent as reinforcement to the Greek-Turkish border. At the mentioned territory, a more determined step against illegal migrants took place with increased capacity of identification points, thereby enabling the residence of more migrants at a time. Cooperation with Turkish authorities were also invigorated, so the number of illegal migrants decreased significantly in this area until August 2014.

45 The EU supported the building of a 33kms long fence on the Turkish-Bulgarian border in order to prevent illegal migration.

46 According to a Frontex report 24,799 illegal migrants were registered via this route to Europe in 2013. In 2014 this number increased to 50,834. 62 per cent of the migrants were Syrian, 25 per cent Afghan and 3 per cent Somali. According to the reports, 87 per cent of migrants arrived on marine routes.
9. Route across the eastern borders

The EU have 6,000 km long ground borderline with Belarus, Moldova, Ukraine and Russia, which is not only a challenge for historical reasons but also pose other risks for the authorities (Frontex 2015a; MIGREUROP 2010). Thanks to the well-organized networks, illegal migrants and smuggled goods can reach EU territories on the “green border” almost unchecked. Most of the migrants come to Hungary, Slovakia and Poland from Ukraine, via Kiev and Uzhhorod, and most of them travels further to the western states (Düvel & Vollmer 2011). Thanks to the relatively small number of arriving migrants, this route was out of sight, but in 2012-2013 their impact on European migrant networks grew. The migrants came particularly from Russian Federation, their Asian, Middle Eastern states or Somalia (Frontex 2013; Shelley 2014). This growth was significant especially on the Polish-Russian border, where the rate of arriving migrants has increased with 70 per cent, but the same tendencies were seen on the Norwegian-Russian, Finnish-Russian and the Polish-Ukrainian borders. In 2013, a bigger group of Georgian refugees appeared at the Polish-Belarusian border and left almost immediately to Austria, Germany and Belgium. In 2014, despite the outburst of the Ukrainian conflict, the number of illegal migrants remained the same, we have data about only 1270 individuals (Frontex 2015b; Kuschminder, De Bresser & Siegel 2015). Figure 11. indicates that this route is the less frequented among all. According to Frontex yearly reports, only about 1,000 illegal migrants arrive via this route, which covers about 2 per cent of the entire migration to the EU. This might change in 2016, since migrants consider this route important on their blogs as a new possible way to the EU, where – thanks to the uncertainty generated by the Ukrainian conflict, insufficient control above borders and corruption – they can get through easily. Additionally, they hope that Poland may not stop migrants heading to Germany.

The progress of the number of migrants on this route between 2009 and 2015 is shown in Figure 11.

```
<table>
<thead>
<tr>
<th>Year</th>
<th>Migrants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1335</td>
</tr>
<tr>
<td>2010</td>
<td>1052</td>
</tr>
<tr>
<td>2011</td>
<td>1597</td>
</tr>
<tr>
<td>2013</td>
<td>1316</td>
</tr>
<tr>
<td>2014</td>
<td>1275</td>
</tr>
<tr>
<td>2015</td>
<td>1920</td>
</tr>
</tbody>
</table>
```

*Fig. 11. Migrants arriving through the eastern borders 2009-2015*

*Sources: Frontex 2015b; Frontex 2016b*
Conclusions

As this paper proves, migration is as old as mankind, such as a part of the routes that they use to travel to Europe. It is also proved that these paths change every now and then especially due to the challenges and different political-economic environment, so intensive control or the total block of routes may result in only temporary effects. This can give an opportunity to the concerned states to elaborate on their appropriate and coordinated procedures in connection with illegal migration. It can be a huge challenge for the international community to handle an acute immigration crisis arising from border closure and the stricter border control, which may lead to the deterioration in bilateral relationships, however in the future it should also be an optional motivator or a casus belli for a possible armed conflict.

Now it seems that migratory waves can be controlled and restricted up to a certain level, but cannot be stopped. It is not easy to find an individual solution, and the neighbouring states’ private counter-immigration policy may also risk the plan. This is why cooperation and active dialogue among both sending, affected (transit) and recipent countries are considered as a key element in the recent international stabilizing mechanisms.

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TOWARDS SUSTAINABLE DEVELOPMENT: TACKLING RELATIONS BETWEEN ENERGY SECURITY AND SOCIAL COHESION

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Abstract. The shifted research gaze in energy security studies leads to formulation of new question – is it possible to talk not only about objective indicators of material deprivation and poverty caused by the lack of energy security, but take into account indicators from socio-cultural dimension? By analyzing solely objective processes and considering economic and political reasons as well as consequences of energy security do we not forget to analyze less visible but not less important aspects of norms, values and power relations, for example how energy security is related to social exclusion? Social exclusion in the paper is defined as process in which the minimum quality of life is not available for the individual or conditions that increase insecurity, shame, psychological discomfort, lack of confidence, lack of self respect and dignity. The ambition of this article is to contribute to consistency of theoretical discussion by tackling energy security to social exclusion as well as by setting methodological guidelines for the assessment of energy security impact on social exclusion. Based on various theories and research models the methodological framework is being laid down in the paper which would encompass such questions as - how public interest is recognized and represented in energy security policy; how (and if at all) the interest of smaller social groups (environmentalists, pensioners, poor, etc.) is defined and represented; whether energy security policy acknowledges interest of poor, deprived and disenfranchised individuals or addresses solely to active and powerful (from consumption point of view) individuals; how existing energy security policy treats and fosters to feel vulnerable groups?

Keywords: energy security, social exclusion, social justice, public interest, social groups, methodology.

Reference to this paper should be made as follows: Genys, D. 2016. Towards sustainable development: tackling relations between energy security and social cohesion, Journal of Security and Sustainability Issues 6(1): 27–36. DOI: http://dx.doi.org/10.9770/jssi.2016.6.1(2)

JEL Classification: Q4, O0

1. Introduction

In probably the most popular definition of energy security from early nineties the goal of energy security is defined as to ensure reliable supply of energy resources at affordable prices without compromising the most important national values and objectives (Yergin 1988: 111). More recent concept of energy security emphasizes the ability of the system to resist possible interference arising due to technologic, natural, economic, socio-political and geo-political reasons (Augustis et al. 2013). In the latest academic literature on energy security we can see the shift of the focus from reliability of supply towards sustainable development (Cherp, Jewel 2011; Sovacool et al. 2014; Ang et al. 2015; Vosylius et al. 2013; Baublys et al. 2015). Energy security being closely related to economy with no doubt has a huge impact on society but there is still lack of evidence on the effect of energy security upon society.
One thing is to talk about the projects that improve energy security from strategic point of view which usefulness is defined by experts opinion and politicians decisions, or to talk about its cost which is usually related to market prices, but another is to investigate the impact of the specific project in a broader social context, i.e., whether it would be useful and attractive for different social groups? Based on previous research (Augutis et al. 2014, 2015; Leonavičius, Genys 2014) we can draw an assumption, that even though the concrete project is strategically useful and economically beneficial it might not necessarily contribute to the increase of energy security if it has diverse and unequal impact on different groups. Democratic societies are diverse societies and different social groups have different understanding of what security mean for them. Thus the implementation of energy security policy is related both with economic efficiency as well as inefficiency and financial burden upon society.

Sociologists analyzing social exclusion accurately notice that material deprivation, which is usually defined as inability to satisfy essential goods (such as decent living conditions – heat, cold/hot water, housing, etc – as well as decent level of quality of life), impoverishes life of the people. However, material deprivation shouldn’t be considered as the only indicator of misery. It is important to understand that misery comes from experience arising from social structures which foster oppression and pain (Bourdieu 1999: 4). The notion of social exclusion encourages interpreting exclusion not only as a consequence of material deprivation, but as a result of multiple social circumstances.

Having in mind notions from risk society (Leonavičius, Genys 2011), governmentality (Leonavičius 2013:19 in Augutis 2013) and social cohesion (Genys, Krikštolaitis 2015) theories point of view we could move forward and start analyzing not only the perceptions or consequences of energy security, but also research how it affects social relations, behavior and even feelings of various social groups. The shifted research gaze leads to formulation of new question – is it possible to talk not only about objective indicators of material deprivation and poverty (as a result of insufficient energy security), but link it to sociocultural dimension in energy security? The aim of this article is to contribute to consistency of theoretical discussion offering new angle by linking energy security to social exclusion as well as to set methodological guidelines for the assessment of energy security impact on social exclusion.

The article consists of three main parts. After the introductory remarks, the first part presents the interrelations between energy security and public interest, energy economy and social exclusion, as well as discusses the existing tensions in Lithuania. The second continues conceptual discussion by linking energy security to social exclusion and elaborating conceptual dimensions. The third part offers concrete theoretical framework and presents operationalization of empirical variables. Lastly, the article ends with concluding remarks.

2. Energy security between objective reality and subjective perception

The implementation of energy policy is based on the rationality of society and its trust in public interest (Dean 2010). Meanwhile discourse studies suggest that some groups of society lack information about energy security issues and this hinders the implementation of smooth policy (Genys 2014). Exploring the distinction between strategic planning and public risk perception it is useful to take into account the contrast between objective and subjective risk origin. According to risk society theory (Beck 1992, 1998; Elliott 2002) they are two sides of the same coin, where dialectics exists in between and this is where the state of risk society emerge. The peculiarities of objective and subjective risk origin and it’s dialectics have been elaborated elsewhere (Leonavičius, Genys 2012). In this particular context is important to notice that strategic planning usually is based on objective processes of risk origin and it’s estimation calculations (Molis, Gliebutė 2012). Meanwhile public perception relies more on constructive risk origin. According to risk society theory (Augustis et al. 2014: 19) and vice-verce: even though the possibility of particular risk from objectivistic point of view might be big due to constructivistic processes its possibility in public perception might be reduced. Thus the role of public perception in energy security implementation context might be ambivalent. On the one hand it might serve as energy security vulnerability while in other as resilience.
In recent history of energy security in Lithuania we could find enough examples when expectations of the experts and public will went in different directions. The most illustrative examples when society wasn’t persuade or even declined particular energy projects implemented by the government are Visaginas nuclear power plant (even though government put a lot of efforts in advertising the advantages of the project, during the public referendum society said no for the further development of this project); shale gas fracking (even though it should have increased Lithuania’s energy independence from Russia and reduce gas costs that are the strategic goals some parts of society remained happy after Chevron’s withdrawal); renovation of multi-apartment houses (even though it is one of the most important project to cope with energy inefficiency in Lithuania, throughout the 2005-2012 years (when the renovation program was established) there were renovated only 479 houses (about 1.8%) (according to Public Company “Housing Energy Efficiency Agency”). It is clear that public perception of energy security is not defined only by objective reality that determines people’s choices by its risks and threats. The reality and public attitude may considerably vary, and sociologists (Slovic 1987; Giddens 1999) seek to explain the discrepancy between expert risk assessment and public risk perception. Obviously people with different levels of education, values, knowledge about energy obviously will interpret energy problems in a different way.

Why a variety of state energy policy activities are misunderstood or unaccepted by a part of population could be explained from another popular – governmentality – theory point of view (Augustis et al. 2014). In order to make certain energy policy (e.g. shale gas extraction, Visaginas nuclear power plant, renovation of multi-apartment houses and other projects), it is necessary to present to the population positive information with particular emphasis for particular social group (that is concerning them). In the meantime, the results of the public poll1 show that most of the society members have vague understanding about the present-day policy of Lithuanian energy policy. 18.3% of the respondents agreed or absolutely agreed with the statement “I am very well informed about the energy problems”.

Energy threats and risks can be treated as a specific way of shaping and controlling the opinions of inhabitants steering the society behavior in certain direction. It becomes especially relevant when the society is not sufficiently informed. Usually threats and risks calculated for energy sector are related with potential population group choices, therefore, when presenting specific suggestions it is possible to indirectly force them to make different decisions (e.g. support for the renovation of multi-apartment houses). Governance is considering more and more the rationality of interest groups, but it is hard to use it if the inhabitants think that energy policy makers do not represent the interests of society or the policy is homogenous and do not take into account the differences of society. For example the concern (possible security problems in the Visaginas nuclear power plant or ecological issues of shale gas extraction) of certain population groups can be used in governmentality technologies by offering different opportunities and stressing the welfare for individuals if they use these opportunities. But the research show that major part of society does not agree that Visaginas nuclear power plant is safe or does not have the necessary information2. Governmentality theory relies on assumption that energy risk is of constructivist nature; therefore, it becomes the constituent part of the governing of society. The theory urges to recognize and understand the perception differences among various social groups and target it in the construction of the smooth (energy) policy.

Energy independence or simply energy security is identified as the primary goal in the official documents of Lithuania (National Energy (Energy Independence) Strategy 2012). Meanwhile the results of the already mentioned public poll reveal that for society the most important aspect of energy security is price (89.7% agreed). The majority of Lithuanian society agree the energy independency from other countries is important (important or very important - 71.8% agreed) aspect of energy security, 68.7% mentioned that “the state should be with and do more about cheap energy instead of energy security”, and only 30.8% agreed that “the state should be concern with energy independence despite the requirement for bigger invest-

1 Here and hereinafter are used the results of public polls carried out in 2013 (by public opinion analysis agency “Vilmorus”), N-2002, and in 2014 public poll was repeated with smaller sample amount, N-1002.
2 “I think that the project of Visaginas NPP will be safe” - 40.2% Totally disagree/ disagree, 23.7% Agree/ totally agree, 36 Don’t know/unanswered; “I think that the project of Visaginas NPP will be economically beneficial for Lithuania” - 37.2% Totally disagree/ disagree, 26.8% Agree/ totally agree, 36 Don’t know/unanswered; “I think that the project of Visaginas NPP will cause new problems for the Country” 17.82% Totally disagree/ disagree, 48.1% Agree/ totally agree, 34.1 Don’t know/unanswered.
“ments” (Augustis et al. 2015: 23). Even though it is almost impossible to ensure the supply of cheap energy without achieving independence of energy sector from monopolistic system, hence the society does not intend to support this goal at the expenses of personal wealth.

Energy security obviously correlate with economic benefit (Feng et al. 2009; Gasparatos, Gadda 2009; Kaygusuz 2012; DeCarolis et al. 2012; Travkina, Tvronavičienė 2015) and the efficiency of particular energy projects suppose to produce economic payback, but it doesn’t portray the complexity of possible effect of energy security towards society. The economic aspects do not necessarily become key elements for smooth energy security. Even if particular project looks good in official plans it might remain only a plan if society will not be persuaded its usefulness or the implementation will be covered by shadows and doubts. There were numerous public debates discussing and arguing the official price, wishful price, real-expected price, whether it is beneficial and who will enjoy the benefit of each particular project to be implemented in Lithuania since the declaration of Independence. Despite this huge public concern it is difficult to assess the efficiency of some particular investments (made by the government). This applies for the development of solar energy, VNPP, and even such successful project as LNGT. The question that always remains relevant for society is - whether we are not paying for energy security too much? Even though the concrete project is strategically usefull it might not necessarily contribute to the increase of energy security if the society opposes to its implementation. Even if concrete project is economically beneficial and useful for the state it still might be too pricy for society and therefore serve as economic burden for society which foster fragmentation.

Some contradictions that face Lithuanian energy policy were elaborated in other papers (Leonavičius, Genys 2014; Leonavičius, Genys, Krikštolaitis 2015). Such contradictions (especially the parallel between strategic interest of the country to become energy independence and public interest for cheaper energy) helps not only to identify the differences among various social groups on perception of energy security, but also reveal the potential fragmentation and decrease of social cohesion in society. It is important to identify the size of such potential, i.e., whether society understand, approve and support the official goals of the government and to analyze what kind of effect on social groups with different income has the government’s pursue of energy security (by installing particular energy projects).

Economic differentiation is quite vivid in Lithuania (Lisauskaitė 2010; Zabarauskaitė, Blažienė 2012), therefore energy prices have different effect on different social groups. The welfare of large part of Lithuanian society depends on centralized supply of energy resources (gas, electricity, district heating), poor quality of energy infrastructure, inability to take individual decisions, and especially prices (Leonavičius, Genys 2014). It is obvious, that part of society with lower income is particularly vulnerable not only because of increasing energy prices, disruption in supply or other risks of the energy system, but also because of the growing financial burden that occurs due to the quest for energy security. Therefore, the cost for energy security (the same as labor market, low income, unemployment, health care and etc.) might become the reason for increase of social exclusion.

3. Energy security as risk for social exclusion?

On the one hand the efficiency of energy security is dependent on social exclusion (i.e., whether society is fragmented or on the contrary - mobilized for realization of particular projects). On the other, the energy security itself can contribute to the increasing or decreasing level of social exclusion (i.e., whether particular projects address the interest of all social groups and fosters involvement).

Usually energy security is expensive necessity thus it is important to consolidate society for the common goal. And on the contrary, if society does not approve particular projects and is not mobilized for the particular goal or if the actual effect of energy security pursue have controversial consequences on society it is difficult to achieve it even if the economic side of the project is beneficial. The economic rationality of energy security does not necessarily become key element for smooth energy security policy. Democratic societies are diverse societies and different social groups have different imagination of what rationality mean for them.
The efficiency of energy security from sustainable development point of view should be linked to two aspects:
1) its capacity to balance possible opositions between its aim and public attitude to it; 2) the actual effect of
the pursue of energy security policy and its impact on public behavior, i.e., state interest vs. public concern,
development of security scenarios vs. public support for concrete projects, efficiency and balance between
investments vs. social justice. The concept of social exclusion helps to understand the life experiences stem-
mimg from multiple forms of deprivation and inequality experienced by people in different places of the social
hierarchy. It also reveals the reduced abilities of participation in society, consumption, mobility, integration and
influence of particular individuals or social groups (Taket et al. 2009: 3).

There are plenty of various conceptualization (Taket et al. 2009; Jehoel-Gijsbers, Vrooman 2007; Duhaime et
al. 2004; Martin 2004) and operationalization (Burchardt, Le Grand, Piachaud 2009; Chan et al. 2006; Rajul-
ton, Ravanera, Beajuot 2007) differences of social exclusion. The most important aspects of social exclusion
usually are distinguished the following: participation, consumption, mobility, access to services, integration,
influence and recognition. Four main dimensions are distinguished in the analysis of social exclusion:
consumption (ability to buy goods and services), production (participation in activities that are considered econo-
mically and socially valuable), political participation (participation in decision-making at local and national
level) and social interaction (relationships with family, friends and the community). Deprivation of any of these
dimensions can lead to social exclusion (Burchardt, Le Grand, Piachaud 2009: 31).

Social exclusion is similarly conceptualized by another group researchers, who say that social exclusion, con-
sists of „multiple dynamic processes driven by unequal power relations between the four (economic, politic,
social and cultural) main dimensions that have different impact on individual or group, community, nation or
global scale (Popay et al. 2008: 2).

Such interpretation is similar to theoretical framework of social cohesion offered by J. Jenson (1998) and P.
Bernard (1999) and their suggested six analytical dimensions. Social exclusion as result of the lack of resources
or its high prices and inability of some people to acquire them or because of that it affects dignity and position
in social hierarchy or creates obstacle for some people to participate and maintain normal social relations, has
an impact not only on quality of life but also affects public perception of social justices and social cohesion
(Levitas et al. 2007: 9).

There are two main directions of how social exclusion is being studied in Lithuania: one direction focus on
economical aspects of social exclusion and on social groups that experience the qonsequences of exclusion the
most; while other direction focus on the phenomena of social exclusion, comparison research, main reasons
of exclusion formation as well as possible prevention models (Tereškinas, Bučaitė-Vilkė 2015: 22). In this
paper social exclusion is interpreted as process (i.e., related to risk factors that might increase the possibility of
social exclusion) which encompass three levels: individual (micro), community (meso) and societal (macro).
This is relevant in this case due to complexity of analyzing object (energy security policy) which is constantly
balancing throughout all three levels.

The analysis of energy security from social exclusion point of view is supplemented by sociocultural aspect. It
includes such dimensions as insufficient social integration (energy security impact on participation in formal/
informal social networks (including leisure activities) and social support as well as social isolation) and
insufficient cultural integration (miss- compliance with norms and values of active citizenship, i.e., indifferences
for interest representation, alienation from energy security policy, miss-interpretation of social justices, abuse of
the state privilege for poor, etc.).

Tracing the relations between energy security and social exclusion, it can be said that the pursuit of energy
security is associated with social justice which could operationalized by the following questions: how pub-
lic interest is recognized, defined and represented in energy security policy? How (and if at all) the interest
of smaller social groups (environmentalists, pensioners, poor, etc.) is recognized, defined and represented?
Whether energy security policy acknowledges interest of poor, deprived and disenfranchised individuals or ad-
dresses solely active and powerful (from consumption point of view) individuals? finally, how existing energy security policy treats and fosters to feel vulnerable groups?

4. Conceptual framework and operational guidelines

In this paper the conceptual framework is build and operational guidelines is set based on different social exclusion/cohesion models, proposed by such authors as Burchardt, Le Grand, Piachaud (2009), Popay et al (2008), Jenson (1998), Bernard (1999). For operational guidelines we use the integrated conceptual scheme of social cohesion provided by Bernard (1999) in which we incorporate the insights of above presented authors. This particular model has been chosen because of it holistic approach encompassing all important dimensions. The model is based on two activity spheres: firstly - (economic, political and socio-cultural); and secondly, on the formal - subjective/attitudinal (how people perceive them) and substantial/behavioral (how people act) relations. These two theoretical facets lead to the conceptualization of the following dimensions: affiliation/isolation, insertion/exclusion, participation/passivity, acceptance/rejection, legitimacy/illegitimacy and equality/inequality.

Such conceptual framework needs modification because in this case it is used not to test social exclusion/cohesion in general but to analyse the impact of energy security on social exclusion. In the assesment of the level of social exclusion/cohesion usually are used both subjective and objective metrics wich cover formal/attitudinal as well as substantial/behavioural nature of relations. It helps to identify the relation between attitudinal and behavioral aspects of society towards energy security. The conceptual dichotomies between formal / attitudinal and substantial / behavioural nature of relation and sets the guidelines for analogical empirical items of each dimension for energy security research is summurized in Table 1.

The formulation of particular questions might vary and depend on the general aim of researcher. The important thing is to accumulate sufficient amount of questions in order the indicators of each dimension would decently represent the impact of energy security on social cohesion. Therefore, in empirical research, before further analysis it would be useful to assess the reliability of internal indicator set within a questionnaire (i.e. to calculate Cronbach alpha coefficient). Needles to say that during the operationalization process (suggesting concrete empirical items) the peculiarities of social organization tradition should be taken into account.

As it was mentioned before the operationalization of empirical variables is based on presented theoretical framework, the analogies of empirical variables for energy security were elaborated by the author of this paper.

**Economic sphere.** The items of formal/attitudinal dimensions suppose to help to identify the attitude of society towards existing insertion/exclusion mechanisms. Meanwhile the items of substantial/behavioural dimensions suppose to reveal the existing equality/inequality balance of society in reality. The analogy of empirical items from energy security impact on society point of view are prescripted in the following way: the items of formal/attitudinal dimension covers various questions with aim to reveal the societal attitude towards the evaluation of the burden of energy security as well as its social justice and evaluation of public opinion of particular projects. The items of substantial/behavioural dimensions cover various questions with the aim to reveal the economic burden experienced by the society, its impact to the distances (economic and social) between different groups of society and the aproval of concrete projects.

**Political sphere.** The items of formal/attitudinal dimensions suppose to help to identify society trust in various governmental institutions and organizations, it legitimacy and efficiency in representing public interest. Meanwhile the items of substantial/behavioural suppose to reveals factual participation and activity of society in democratic governance. The analogy of empirical items from energy security impact on society point of view are prescripted in the following way: the items of formal/attitudinal dimension cover various questions with aim to reveal societal trust in various organizations and institutions as well as private companies (including

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3 Over the years different traditions of social cohesion have evolved in different countries. Comparative analysis (Green, Janmaat, Cheng 2011) of contemporary societies identifies three distinctive types - known as ‘liberal,’ ‘social market’ and ‘social democratic’ - of social cohesion. Which emphasize different aspects of cohesion growth as well as exclusion increase. It is crucial to grasp such aspect as market freedom and role of civil society as well as institutional embedding when trying to set empirical indicators.
foreign) related with energy security and attitude towards safety of concrete energy projects. The items of substantial/behavioural dimensions cover various questions with aim to reveal factual society’s civic activity and involvement as well as their knowledge about various aspects of energy security.

Sociocultural sphere. The items of formal/attitudinal dimensions suppose to help to identify the attitude of society towards openness and respect for diversity. Meanwhile the items of substantial/behavioural suppose to reveal the dominated values and their diversity through the belonging of the society to various organizations. The analogy of empirical items from energy security impact on society point of view are prescribed in the following way: the items of formal/attitudinal dimensions cover various questions with aim to reveal public perception of social justices of energy security and readiness to contribute to public interest in energy security as well as perception of energy security (whether it is based on self interest or societal interest). The items of substantial/behavioural dimensions cover various questions with the aim to analyze whether the existing effect of energy system on society maintains the possibility to remain autonomous and ability to individually defend oneself from energy threats.

Table 1: Integrated conceptual scheme of social cohesion analysis (based on Bernard’s model).

<table>
<thead>
<tr>
<th>Sphere</th>
<th>Nature of relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td></td>
</tr>
<tr>
<td>Formal / attitudinal</td>
<td>Insertion/exclusion</td>
</tr>
<tr>
<td>Economic</td>
<td>The formal/attitudinal items of economic dimension should cover questions with aim to reveal the societal attitude towards the evaluation of the burden of energy security as well as its social justice and evaluation of public opinion of particular projects.</td>
</tr>
<tr>
<td>Suggested empirical items for energy security research</td>
<td>Attitude to social justice of energy politics</td>
</tr>
<tr>
<td>Political</td>
<td>Legitimacy/illegitimacy</td>
</tr>
<tr>
<td>Political</td>
<td>The formal/attitudinal items of political dimension should cover various questions with aim to reveal societal trust in various organizations and institutions as well as private companies (including foreign) related with energy security, assigned responsibility and attitude towards safety of concrete energy projects.</td>
</tr>
<tr>
<td>Suggested empirical items for energy security research</td>
<td>Trust in governmental organizations; national energy organizations; foreign energy companies; international organizations</td>
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<td>Sociocultural</td>
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<td>Sociocultural</td>
<td>The formal/attitudinal items of sociocultural dimension should cover various questions with aim to reveal public perception of social justices of energy security politics and personal readiness to contribute to public interest in energy security as well as perception of energy security (whether it is based on self interest or societal interest).</td>
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<td>Suggested empirical items for energy security research</td>
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Resume

Such research would provide an opportunity to explore three (economic, political and socio-cultural) dimensions in more details and analyze the contribution of each aspect of energy security on social exclusion. Depending on the aim of the research it would be possible to identify specific social groups which have most diverse opinion or which suffer from particular aspects of energy security the most. The importance and usefulness of such methodology however might be more appropriate for young democracies and developing countries where inequalities between various social groups are more vivid. And on the contrary in countries where dominates equality most probably disproportion between strategic interest and public support would be less likely present.

In the analysis of energy security impact on social exclusion it is important to take into account not only the efficiency (strategic or economic) of concrete energy project itself, but also its impact on social exclusion/cohesion. In the quest for strategic long term goals sometimes it is inevitable to raise the price of energy, but from sustainable development point of view this might lead to the fragmentation of society and even to the growth of anxiety. To compensate this negative side it is important to gain as much public support as possible. As we have seen, large part of Lithuanian population understands the importance of energy security and the need to protect from possible risks. However public opinion results indicate the insufficiency of such support. For successful implementation of energy security policy and optimization of the level of social cohesion it is inevitable to take care of both favorable public opinion and the positive impact of particular projects on society.

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Abstract. Various types of calamities determine greater political attention to disaster management, but permanent efficient functionality of this sphere has to be the priority of the state as the guarantor of fundamental obligations to its citizens. Legal regulation sets fundations for functioning of certain system of institutions and processes, which intend to ensure proper disaster management. The article analyses theoretical aspects of disaster management in the context of public sector modernization with the distinction of traditional public administration, New Public Management, New Public Governance and Neo-Weberianism. The focus is on the acceptability of different models of public sector to disaster management. In the first part of the article, the attention is focused on the advantages and disadvantages of traditional public administration to disaster management. The second part of the article reviews the significance of the reform and the practical implications of the principles of New Public Management to disaster management. The third part of the article analyses the significance of New Public Governance discourse to disaster management and the fourth part defines the newest theoretical aspects of public administration Neo-Weberian model and its significance to increasing the efficiency of disaster management system is evaluated.

Keywords: disaster management, public administration, modernization, new public management, new public governance, neo-weberian state.


JEL Classifications: D73, H83

1. Introduction

Paradoxically, scientific or political attention to disaster management usually intensifies after very significant and devastating events such as recent terrorist attacks in Paris, France, shootings at the Inland Regional Center in the USA or terrorist attacks in New York on 11 September in 2001, hurricane Katrina in 2005 in the USA, Fukushima accident in Japan in 2011 (which reminded about nuclear safety), tsunami in the Indian ocean a decade ago which took 300 000 lives (people did not understand the notifications about the coming disaster). Not all the threats which manifestations we face today arise in the state we live. The already occurred catastrophic situations promote reorganizations in the public administration institutions and development of roles and limits of responsibilities of managers who work in the public sector with catastrophic situations, and in scientific discourse the temporary increase of publications is observed seeking to study the dysfunctions of the existing system of disaster management and to avoid possible destructive effects in the future (Survila et al. 2015b; Comfort et al. 2012).
Similar tendencies of the need for modernization of disaster management institutions are noticed in Europe, too. Heat wave in Europe causing 35 000 deaths in 2003 (Survila et al. 2015b), cyber attacks carried out against public administration institutions communication and information systems in Estonia in 2007, hybrid war in Ukraine in 2014, the attack of the Islamic radicals executed against the editorial office of French satirical weekly in 2015 are only a few examples which encouraged many political leaders and intellectuals of European countries to question possibilities of national security, control methods, improvement of decision making, concept of crisis, aspects of jurisdiction, correspondence of the existing disaster management systems to the challenges of the contemporary period. Hence, disaster situations focused attention of politicians, scientists and public on whether public administration institutions are adequately prepared to carry out their functions, effectively coordinate their actions, and ensure territorial integrity and comprehensive security of their citizens.

G. A. Kreps defined disasters as non-routine events in societies or their larger subsystems (e.g., regions and communities) that involve conjunctions of physical conditions with social definitions of human harm and social disruption and are both physical events and public policy issues with distinctive qualities. The phrase "non-routine events" distinguishes disasters as unusual and dramatic happenings from everyday issues and concerns. The dual reference to “physical conditions” and social definitions means that each is individually necessary and both are collectively sufficient for disasters to occur in social time and space. The designation “societies or their larger subsystems” means that human harm and social disruption must have relevance for larger social systems (Kreps 2001). Quarantelli 1998 offered a comprehensive definition that bears on the shared defining component of disaster, that is, of the negative consequences of the disruption of the accustomed routines of daily functioning at the collective level. According to Quarantelli, disasters are those crisis occasions generated by the threat of or the actual impact of relatively sudden natural and technological agents (such as earthquakes, floods, hurricanes, volcanic eruptions, tornadoes, and tsunamis as well as toxic chemical spills, radiations fallouts, large-scale explosions and fires, structural failures, massive transportation wrecks and crashes, etc.) that have significant negative social consequences. Basically we include only those instances where everyday community life is disrupted and where local resources cannot handle the demands of the situation (Quarantelli 1998).

Public Administration as a science usually pays attention to implementation of public policy, management of public and non-profit organizations, actions of the government which uses partnerships, networking and contractual relations. Public administration institutions try to manage various risks in society - from threats to health and occupational safety to financial risks and risks to national security. Normally, in the disaster management system threat identification and risk management is carried out on several levels such as economic entities, municipalities (or communities) and the state (Survila et al. 2015a). Foundations on disaster management system are set by the legal regulation, which often is influenced by politicians more than managers, who are main addressees of it. Harmonisation of the legal and managerial aspects of disasters management is another issue, which is necessary to analyse. Disaster management is determined by the need to minimize the risk of potential threats, prepare to combat them and carry out response and recovery actions. It should be noted that in disaster management system the central role are playing public administration institutions, which effective actions are determined by coordination and cooperation.

Disaster management is a complicated field. This is confirmed by disaster management and public administration researcher Waugh who summarized the results of analysis of disaster management of many authors and differentiated factors such as: 1) especially large variety of disasters; 2) lack of support by political and administrative authorities for disaster management; 3) complexity of measures required for disaster management; 4) jurisdictional confusion; 5) inhospitable political and economic environment for the expanding state functions; 6) questionable competence of local and state level officials to plan, implement, finance and maintain effectively disaster management systems (Waugh 1994).

The changes of models of Public Administration were analyzed by Pollitt, Bouckaert 2011; Wong 2013; Stout 2010; Andrews et al. 2013; Wiesel et al. 2014. In the field of disaster management research the following authors as Coppola 2015; Schneider 2008; Saban 2014; Huder 2012; Busch et al. 2013 should be mentioned. While analyzing ratio of research of disaster management and public administration the article by Petak 1985...
should be highlighted, where he tried to define disaster management as a challenge to public administration system. Academician Waugh went deep into the disaster management issues at national and local authorities levels (Waugh 1994). Comfort et al. analyzed the development of disaster management system in the context of public administration (Comfort et al. 2012). Basically, scientific publications mostly or exclusively focus on “case studies” of disaster management, or simply on the changes in public administration. In Lithuania, studies analyzing systemic importance of the different models of public administration to disaster management were not detected.

It should be noted that in changing global political, socioeconomic circumstances, implementing of the decisions of supranational institutions or seeking to integrate innovative cross-sectorial elements of good practice promoted by academic community, inevitably transforms political posture, practical aims of public sector institutions, methods of management, relations between the public administration sector and society. These changes are usually treated as permanent processes of public administration modernization. Traditionally, while analyzing public administration reforms it is agreed on four basic approaches: traditional (Weberian public administration); New Public Management; New Public Governance (which has a more theoretical nature, certain governance principles and its status as an independent paradigm is unclear) and emerging Neo-Weberian model. Theorists and practitioners of public administration constantly debate on the necessity of optimal management environment taking into account the fact that each of these models has strong and weak sides. The article raises the problem that is formulated as a question - how different models of modernization of public administration affect the disaster management system? The authors aim to find out exactly what paradigm of public governance and environment that it creates would best suit to the needs of disaster management systems in the context of modernization of public administration sector. Disaster management is the constant process of learning, the search of balance of management methods; therefore, literature review, comparison, and synthesis will be used to reveal the existing problem and achieve the objective.

2. Framework of existing disaster management system in Lithuania

If we see legal regulation as a reflection of public policy in certain field, it is necessary to review the main documents regulating the field of disaster management. Such analyses will encourages us to see the main areas, which policy makers treats as important. As well it will help to identify the peculiarities of Lithuanian system for managing disasters. The preamble of the Constitution of the Republic of Lithuania (1992) as law without gaps (Kūris, 2006, p. 11), among other things, declares the innate right of the human being and the nation to live and create freely in the land of their fathers and ancestors — in the independent State of Lithuania. One of the fourteen chapters of the Constitution – Chapter XIII “Foreign Policy” – determines the principles of foreign policy and national defense. National defense (protection) is the priority government’s and all citizens’ obligation binding to ensure protection of the priority constitutional values - the state’s independence, territorial integrity and constitutional order -, which guarantees the security of the state and require special constitutional measures and separate institutional system of military and paramilitary agencies (Birmontienė et al., 2012, p. 917-918). Systematically analysing the text of Constitution it is clear that the most important values, which are safeguarded by this fundamental document, mostly focus on ensuring the independence, territorial integrity and constitutional order in the state. It might be stated that there is no special focus on safeguarding the nation from the various types of disasters (extreme situations, if we use definition, which from Lithuanian legislation), which are not connected with infringement above-mentioned threats, but still are essentially important for sustainable development and wellbeing of the state. Still in Constitution of Republic of Lithuania (1992), there are several articles, which are related with a state of emergence. Such regulations include permission to limit certain fundamental rights (for example right of free movement on the ground of necessity to preserve health of society as it is stated in Article 32). Article 144 is dedicated for regulation of declaration of a state of emergency. According to the text of Constitution when a threat arises to the constitutional system or social peace in the State, the Seimas (Parliament) may declare a state of emergency (no longer than for six month period) throughout the territory of the State or in any part thereof. In cases of urgency, between sessions of the Seimas, the President of the Republic shall have the right to adopt a decision on the state of emergency and convene an extraordinary session of the Seimas for the consideration of this issue. The Seimas shall approve or overrule
the decision of the President of the Republic. This provision should be taken into considerations together with paragraph 1 of Article 94, there is stated that one of the most important function of Government of Republic of Lithuania is to manage national affairs, protect the territorial inviolability of the Republic of Lithuania, and guarantee state security and public order. The state of emergency is regulated in details by special law.

In general matters of civil safety in the Republic of Lithuania are governed by several legal acts. The main of them are briefly overviewed below. Having in mind that foundations of regulation of the state of emergency are provided in Constitution (1992), no double The Law on State of Emergency (2002) is one of the most important in this field. This Law presents a definition of extreme situation (equivalent in Lithuanian legislation for the concept of disaster), establishes the grounds for imposing such state, describes in detail the order of imposing it as well as discloses the peculiarities of state governing and institutional system for managing state of emergency.

Constitution and Law on State of Emergency divides functions of managing the state of emergency for several different institutions. Parliament (and President between sessions of the Parliament) is a body, who is authorized to impose such status. Government is an institution, which is in general responsible for guaranteeing state security and public order. Finally three institutions, which are authorized to secure the implementation of Law on State of Emergency: special institution, responsible for management of extreme situation; Public Order Protection Commandants and Municipal Administrations (two level managing system: state level and municipality level).

Another Law, which should be mentioned, is the Law on the Basics of National Security of the Republic of Lithuania (1996). This law also mostly is based on regulating protection and defense of the independence of the State of Lithuania, its territorial integrity and constitutional order. Still some articles focus on protection of such values as public health. In terms of the topic under discussion Chapter 21 "Institutions Of Civil Defense And Rescue" of Part III „The National Security Ensuring Institutions And Their Activities“ of the mentioned law is of particular importance. This section provides that the purpose of civil defense and rescue system is to protect the population from calamities in war and peace time, through their own active participation in these activities. This system ensures the readiness of all the rescue services and their preventive actions, and in the event of natural disasters, catastrophes and armed conflicts - ensure that the public be warned and kept informed, their lives and property protected, and the necessary immediate assistance and evacuation from dangerous regions carried out. Furthermore, the Chapter states, that the detailed structure, subordination, functions, responsibility of all the institutions and services of the unified system of civil defense and rescue, and their interaction with other state institutions and local governments shall be determined by law and other legal acts.

With respect to the law under discussion, the Law on Civil Protection (1998) shall be considered the special law. It establishes the legal and organizational framework for the organization and functioning of the civil protection system, the competence of state and municipal institutions and agencies, the rights and duties of other agencies, economic entities and residents in the sphere of civil protection. In this context, it should be emphasized that this law is particularly important for the definitions of an emergency event and emergency (partly it can be treated as equivalents of the disaster concept). Thus, an emergency event means an event of natural, technical, ecological or social character, which has reached or exceeded the established criteria and poses a hazard to the life or health of residents, the social conditions of their life, property and/or the environment. And an emergency shall mean a situation resulting from an emergency event and posing a sudden and grave hazard to the life or health of residents, their property, the environment or causing death and mutilation or likely to incur another damage. In the case of emergency, i.e., under the threat or event of it, reaction of specific institutions is necessary. Hence the need for the definition of civil protection occurs; it is described as follows: Civil protection means the activities comprising the preparedness of state and municipal institutions and agencies, other agencies, economic entities and residents for an emergency, actions in the event of an imminent threat or occurrence thereof and emergency response and mitigation of its consequences.

Additionally, another two legal acts should be mentioned: the Law on mobilization and support of the host country (1996) and Resolution No IX-907 of the Seimas of the Republic of Lithuania of 28 May 2002 on the Approval of the National Security Strategy (2002). The mentioned Law on mobilization and support of the host country, inter alia, regulates relevant civil infrastructure issues, defines the concept of civil mobilization institution, and
the like. Meanwhile, the National Security Strategy approved by the resolution of the Parliament in principle details the abovementioned Law on the Basics of National Security of the Republic of Lithuania (1996). It should be noted that one of the internal security policy priorities and objectives is maintenance and enhancement of public safety. This means that the Republic of Lithuania, in order to avoid state-level emergency or reduce their consequences, will focus on the education of the population, foundation of basics for secure society, and strengthening of the civil protection system operators’ skills and capabilities. In conclusion, it should be stated that legal regulation of Republic of Lithuania establishes backgrounds for creation of disaster management system, envisages responsible institutions. Still the deeper analyses of legal foundations in this field is necessary in order to provide unified vocabulary of definitions, clarify the functions of each institution and systematically harmonize and legally validate the managerial processes, which should be ready to apply in cases of disasters.

3. Disaster management in the context of public administration

Traditional, Weberian public administration as the mechanism of implementation of public policy has certain specific features. This article does not seek to define all the features of the model but is oriented to those, which can be important to disaster management. Particularly important are the principles, which accent such features of the public sector institutions as impersonal, formal, hierarchical structure of management, centralization, transience, professionalism of bureaucrats, information asymmetry, and orientation to procedures. The only form of authority for public sector governance becomes law and regulations based on the law, public services are organized exclusively through state structures, public administration institutions operate effectively only if they are closed systems; therefore, citizen participation is limited (Stout 2010; Hughes 2003; Denhardt, Denhardt 2006; Wong 2013, Laužikas et al. 2015).

Many of the features of the traditional paradigm reflecting the ideal of legal management is highly relevant and adaptive organically to the area of disaster management, but in order to highlight these aspects, to disclose the compatibility and connectivity of the components it is very important to define the concept of disaster management (Survila et al. 2015a). In daily activities individual, community, society face with the seemingly endless hazards, but practically their number is very limited because manifestation of their effects depends on our genetics, movement in space, habitat, activities, geographical location and randomness. Hazard means an event or physical conditions that have the potential to cause fatalities, injuries, property damage to the environment, interruption of business, or other types of harm or loss (UN/ISDR, 2004). In the disaster management literature of disaster management hazards are usually classified into three types: natural, technological, and intentional. Existence of hazard itself does not pose any significant risk, but a significant risk is caused by their onset magnitude of the potential loss and the probability the specific loss will happen. Globalization, accessibility of international transport system, global climate change are those factors which facilitate the dissemination of hazard effects over a wide area. It is obvious that it is impossible to plan or to protect against any unforeseen situations; therefore, the biggest focus is put on hazards that cause the most unwanted consequences. Based on Saban the disaster management process is defined as the possible actions taken by an organization to reduce the impact of disasters on humans, the built environment, or both (Saban 2014). Although there is no agreed formula at the global level for how modern disaster management should be established and implemented, the following three aspects are mostly shared by distinctive disaster management programs:

a) preparation for a disaster before it occurs by developing early warning devices;

b) development of disaster response (e.g., emergency evacuation, and quarantine, mass decontamination);

c) support and rebuilding plans after natural or human-made disasters have occurred.

Contemporary cycle of disaster management is characterized by four phases: mitigation, preparedness, response and recovery (Coppola 2015):

a) mitigation - inseparable from potential harm reduction or elimination of the occurrence of the threat when it has not manifested yet. Mitigation phase aims to control the risks so that the frequency of the threat is minimized, and if it arises, it would have the least possible negative impact on society, environment, and property. Risk reduction practice includes risk source control, community protection actions, land use and building construction practices (Lindell et al. 2000). Prior to the formation of risk reduction policies, goals and objectives,
it is necessary to carry out the tasks of identification of threats, assess vulnerability and risk.
b) preparedness - includes sourcing the necessary measures, which assist or increase the chances of survival during disaster, reduce financial and other losses. During preparedness phase legislative acts and subordinate regulations on disaster management are prepared and approved; plans for disaster management are prepared, public warning system is developed, resources required for response and recovery operations are foreseen, mutual aid agreements with stakeholders are initiated and signed, training and practice for the staff and communities and public education are offered (McEntire et al. 2004).
c) response – focused on the implementation of concrete actions to reduce the risk of onset effects, to prevent further destructive consequences. During response phase people rescue and search are executed; first aid is provided; evacuation is carried out; the impact of disaster is evaluated; water, food and accommodation are supplied to victims; health protection of the victims and sanitation in the affected area are ensured; protection and security of the people of affected area is ensured; critical infrastructure is renewed; received charity for victims is managed (Coppola 2015).
d) recovery – in this phase is important to reintegrate the people and the affected area into the “normal” status according to the consequences of disaster. Recovery phase begins when response phase is still ongoing. Restoring of the affected area may last from several months to several years. Governmental authorities actions and support during recovery occurs by coordinating and assuring cooperation of the actions of the public administration institutions responsible for disaster management, damage assessment, emergency needs assessment, distribution of support, recovery program and project-level work plan preparation and implementation, funding and additional support (Coppola 2015).

Every disaster can require unique decisions but, on the other hand, there are common structures of models of disaster management. It should be noted that in countries with decentralized governance and where local disaster management managers have primary responsibility to react to disasters, the process of disaster management goes “step by step“. Local authorities of the affected communities try to manage the consequences until they are no longer able to cope on their own. When this level is reached the information about the current situation is transmitted to a higher officer, who then decides whether to go to the next level of Governmental support. If the official decides that the aid is necessary, he/she recognizes that there has been disaster and the necessary resources are given. If he/she thinks that the resources at his/her disposal are not enough to control the consequences of disaster, he/she refers to the leaders of national level for additional support. The official of national level, usually a Prime Minister (Lithuanian case) or President is obliged, on the basis of given information, evaluate the situation and decide whether the situation is characterized as national disaster. If a disaster is declared as national scale disaster, national Government resources of different institutions and ministries will be allocated for the implementation of National Disaster Management Plan. In addition, reserve fund for disasters management is used for response and recovery actions of emergency management (Suvila et al. 2015b).

Based on the analysis of the thoughts of the above authors, we have to note that the key role in the field of disaster management is played by various human rescue, fire, environmental, social care, military and other services; although, in the optimal case, civil society should also be involved. By the way, in these structures of public sector institutions the elements of traditional public administration model are particularly relevant. Traditional public administration is characterized by hierarchical, centralized management and these features are particularly important to the context of disaster management (Denhardt, J. V., Denhardt, R. B. 2006). Democratic pluralism, long term debate about the suitability of decision making takes much time and this can cost human fatalities during disaster. Centralized, hierarchical form of governance (taking into account necessary advisory bodies for solution of each unique problem) enables subsystems (different organizations of disaster management) to communicate and interact in common. Besides, hierarchical management, prevailing rules and predominant law, as the only form of authority in disaster management, are important because they allow for every civil servant to identify oneself with the represented institution, in other words, every disaster manager or an official working in the disaster management system can act in the name of the institution he/she represents (authority) (Huhges 2003; Stout 2010). Strict assurance of rules and procedures is also important, closed nature of bureaucratic institutions is relevant to storage and restriction of usage of documents as sources of information, which is particularly relevant in disaster management, when working with secret or sensitive to society information.
Analyzing theoretical aspects of public administration we are obliged to mention the problem related to information asymmetry. In traditional public administration the aspect of bureaucratic professionalism dominates; therefore, it is necessary to pay attention to the fact that bureaucrats, operating in every separate institution, can dispose information available only to them. Inevitably there is a possibility that, in some cases, there will occur differences between the information that is known by bureaucrats working in a particular public administration institution, compared with the information available or provided to the politicians and civil society. This principle is relevant when analyzing the activity of bureaucratic institutions – they can also avoid sharing information with each other or start manipulating it in order, first, to ensure satisfying the interests of their institution, for example, to receive more funding than other institution operating in the area (Osborne 2002). This problem is particularly acute in the bureaucracy and can destructively affect disaster management. As an example can be given the situation of information asymmetry which occurred in the USA before the events of 11th of September in 2001, among such secret services as Federal Bureau of Investigation (FBI), Central Intelligence Agency (CIA), National Security Agency (NSA), when each of them had part of the information connected to the upcoming events, but did not share it; therefore, it can be assumed that maybe the scale of catastrophic events would have been different if the information had been shared among institutions.

Traditional continental European public administration system is particularly significant to disaster management for clearly defined and formalized functions and limits of liability that, as evidenced by the practice of many countries, is particularly relevant in disaster management. For example, in Lithuania disaster management is executed „from the top to the bottom“ while discussing the occurred situation in two separate levels – state level (if the situation is of the State level) or municipality level (if the situation occurs in the territory of a particular municipality), by appointing an operation leader on state or municipality level accordingly. For example, such situations as annual flooding in Šilutė in spring, the possibility of spread of dangerous and extremely dangerous infectious diseases – bird flu in 2007, African swine fever in 2013, pandemic influenza in 2009 also increase in forest fire in 2009 and not managed medical waste in Vilnius and other municipalities in 2011, were discussed at State level i. e. in the Government Emergency Commission meetings. Operation Leader appointed by the Government was responsible for managing the disaster and elimination of the consequences (PAGD 2015). Equally important feature of traditional paradigm is the prominence of procedural and legal aspects and lack of managerial flexibility, which could also have negative consequences for the decision-making sequence. Similar dysfunctions are revealed while analyzing management aspect. Although hierarchical, centralized management is an organic feature of the traditional public administration, it is necessary to draw attention to the fact that the specifics of disaster management is the need to coordinate and unify work of different institutions, act under extremely cardinal and challenging circumstances, implies leadership, not merely formal, need for procedural management. Leader, acting in this field of management, must be flexible, take into account the fact that when making adequate decisions in disaster management it is necessary to work not only with the whole system of public administration, but also with other social partners: communities, business structures, NGOs (Sûrvišius et al. 2015).

Scientists emphasize different aspects of leadership necessary for disaster management. One of the most important - having a vision. Vision indicates the direction, inspire followers, gives self-confidence, motivation to act and allow affected disaster individuals, communities or institutions to get out of the difficult situation and return to the normal state. The broad vision for disaster management should be linked with the needs of affected institutions or persons. In order to reach such aim disaster management leaders must not only ensure that their operations are legitimate but also to gain and maintain the trust of the people. F. Demiroz and Kapucu N. argues that the disasters are characterized by ambiguity, uncertainty, lack of access to predict the development of the situation. Thus, to act in such situations, according to a prearranged schemes often impossible. A. Farazmand argues that disaster manager must be characterized by the ability to “manage the surprise,” which is based on several principles: the need to learn to reject everything that follows from the routine and what can be expected and respond flexible and adaptive, and it means that the disaster manager’s flexibility, the ability to make decisions in time and learn lessons from previous disasters is essential. Leadership skills, enabling effective communication and to access and use information not only in a formal way, foreground, but the information available through informal channels are necessary for disaster managers. Thus, disaster manager must work effectively in formal and informal teams and networks, which include various stakeholders, communities and other groups.
(politicians, civil servants). Here success can only be guaranteed the ability to cooperate (Survila et al. 2015b).

During the above mentioned hurricane Katrina, when all levels of public administration were characterized as incompetent, bureaucracy reaction took a lot of time, therefore communities (eg. religious or local) and various NGOs voluntarily expanded their activities and participation joining to the management of the disaster by providing effective assistance to the affected citizens where it was first needed (Haddow et al. 2007). Long lasting and process oriented activity of bureaucratic machine in the context of disaster management is basically becoming a challenge to the concept of traditional public administration as the most efficient and rational form of governance. Therefore, it is necessary to pay attention to static features of this paradigm, permanent dependence on legal framework, machinability and procedurality, which minimizes bureaucracy options to respond to constantly changing external environment in the areas of public policy. However, in disaster management, taking into account the fact that disasters are usually characterized by vague nature, this procedural logic and coordinated, standardized training and partnership of all structures of governance become very practical and functional. In other words, even if traditional public administration is static, in this area its static nature determines procedures that ensure flexibility and adaptability of organizations involved in disaster management (Survila et al. 2015a).

In summary, it should be noted that traditional paradigm of public administration is relevant to the formation of the environment of disaster management because the essential role in the field is played by disaster management organizations which are based on hierarchy and centralization, and traditional public administration is characterized by these terms precisely. It is noteworthy that traditional public administration is significant to disaster management because of clearly regulated and formalized managerial or organizational functions and limits of liability which, as evidenced by the practice of many countries, are important for disaster management in order to avoid confusion arising from duplication of functions, unclear allocation of competencies and spheres of responsibility. Analyzing the obstacles of this model to the success of disaster management, it is necessary to draw attention to the need for leadership, management specifics, risk randomness, need to coordinate and unify work of different institutions to act under very critical and complex circumstances. According to the authors of the article, these aspects require a manager of disasters not only formal, procedural guidance, but also competencies, a certain amount of knowledge and personal qualities such as flexibility, creativity, ability to combine different interests, planning, ensuring information flow, time management, conflict resolution, change management and many others.

4. Disaster management in the context of the reforms of New Public Management

It must be recognized that disaster management is characterized by some uncertainty, i.e. there is always a possibility that the allocated funds can be justified, or fail, depending on the relatively rare nature of occurrence of some of the hazards. It is emphasized that necessary financial resources for disaster management may exceed the benefits they bring to society, so from the perspective of economic rationality this area often receives various types of resistance from political and administrative structures (Petak 1985). This is especially revealed when analyzing these processes from the perspective of neo-liberal ideology characteristic to New Public Management. The reforms of New Public Management are an attempt to eliminate some dysfunctions of traditional public administration model moving to the principles of more liberal governance, emphasizing decentralization of institutions, integration of business methods and values into the public sector, changing the perspective of short-term management to strategic planning, supplementing less control, governance based on strict rules with orientation to the mission of organization, highlighting economic efficiency and effectiveness, privatization, inter-institutional competition and partnerships of public sector with the structures of private sector. Integration of these business methods and values into the public sector is inseparable from the Chicago School of Economics, and especially by M. Friedman’s ideas. The Nobel laureate Friedman’s economic ideas significantly affected the New Public Management reforms in the genesis of modernization both in the UK and the USA. Since disaster management is an integral part of public administration sector, it is obvious that these reforms are undoubtedly significant to our area of study, so the above principles require more detailed analysis in order to better understand their impact on disaster management. (Andrews et al. 2013; Butler 2011; Huhges 2003; Osborne, Gaebler 1992; Survila et al. 2015a; Wong 2013).
In the institutions of public administration, in the context New Public Management, the focus on economic performance begins to dominate. Effective institutions in the context of New Public Management are those that are characterized by cost-effectiveness, i.e. act in accordance with market principles, are able to generate funds, distribute their finances taking into account the possibility to attain „tangible“ results (Andrews et al. 2013). Meanwhile, disaster management efficiency is characterized by many other types of elements, which are difficult to adapt to the criteria to New Public Management. Effective features of the structures of disaster management organization were presented by Public Entity Risk Institute, basing them with their studies: a) provides motivation for participation in the disaster management; b) suitable (local, national, international) funding; c) the opportunity to maximally warn the society; d) organizational structure of daily activities is similar to the organizational structure of extraordinary situation management; e) citizens’ involvement in the disaster management f) constant monitoring of potential disasters (PERI 2001). It should be understood that nature of the field of disaster management requires permanent, rather than individual attention and funding, and on this basis the possible efficiency and effectiveness of the actions of disaster management authorities can be sought. We have to notice the fact that these economic tensions particularly manifest when raising questions about creating certain means of financial motivation for community involvement in disaster management. For many politicians, based on economic perspective of New Public Management model, this may seem like a mere waste of taxpayers’ money, irrational use of financial resources (Survila et al. 2015a).

Privatization, as another instrument in New Public Management, is characterized by reduction of the role of the state in the context of disaster management, should be considered ambiguous. On the one hand, the role of private sector as a provider of public services can be justified by the objective of economic efficiency and more optimal use of human resources (when personnel, operating in disaster management, are hired only when a certain disaster happens), on the other hand, the context of privatization and contractation highlights ethical issues, whether it is ethical for the structures of private sector to profit from human misery, whether it is ethical that the taxpayers’ money, allocated to ensure the fundamental functions of the state, get in the hands of private sector (Rademacher 2011). Another important feature of the New Public Management, which needs to be discussed, is connected with decentralization of public administration institutions, more liberal character of management, creation of partly autonomous structures. These trends may be harmful for decision-making in disaster management taking into account that decision-making must be characterized by subordination of lower institutions. Decentralization in this area distorts traditional links of organizations and causes the state of disability. Organization, which works efficiently in a specific sphere, in the context of disaster management can fail to properly implement the tasks because different hazards require complex solutions and every organization, participating in disaster management, is usually responsible for completely opposing area, differs in its existential purposes, for example, Fire, Rescue Departments and Police; therefore, centralized coordination and control is necessary (Survila et al. 2015a). It should also be noted that decentralized structure of the public sector institutions could actually become a threat in the specific context of disaster management as, for example, dissemination of contemporary terrorism, such as, Islamic State of Iraq and al-Sham or the Islamic State of Iraq and Syria (ISIS) in 2014 – 2015 in the Middle East or rise of Boko Haram (jihadist group based in northeastern Nigeria) in Africa, especially in Nigeria where for more efficient provision of public services the path of decentralization of public authorities has been chosen. Decentralization motives coincided with the transition from autocratic and militaristic regimes to democratization of governance (Okojie 2009).

Disaster researchers have identified two contrasting approaches to disaster response, commonly termed the “command-and-control” and the “emergent human resources,” or “problem-solving,” models. The command-and-control model equates activities with military exercises. It assumes that (1) government agencies and other responders must be prepared to take over management and control in disaster situations; (2) disaster response activities are best carried out through centralized direction, control, and decision making; and (3) for response activities to be effective, a single person is ideally in charge, and relations among responding entities are arranged hierarchically.
In contrast, the emergent human resources, or problem-solving, model is based on the assumption that communities and societies are resilient and resourceful and that even in areas that are very hard hit by disasters, considerable local response capacity is likely to remain. Another underlying assumption is that preparedness strategies should build on existing community institutions and support systems—for example by pre-identifying existing groups, organizations, and institutions that are capable of assuming leadership when a disaster strikes. The model also recognizes that when a disaster occurs, responding entities must be flexible if they are to be effective and that flexibility is best achieved through a decentralized response structure that seeks to solve problems as they arise, as opposed to top-down decision making (NRC 2006). On the other hand, despite the desire to move to decentralized institutions at the political level have been motivated by anti-expanding, stagnating bureaucracy, inefficient centralized public programs implementation and bureaucrats orientation not to citizens but to the personal interests of the administration (public choice theory), the decentralized institutions which employ large autonomy distinguished entrepreneur (Denhardt, Denhardt, 2006), can also cause major problems in the context of disaster management. Primarily due to a lack of resources when disaster occurs immediately necessary to mobilize and coordinate activities of many institutions, what for decentralized institutions would make it extremely difficult. As an example, may be mentioned the incident in Lithuania 2015 when more than 3,000 officers from various statutory authorities, including counter-terrorism special operations team „Aras“, were involved in to arrest of weapon stealed addict. The second no less important aspect is the weakening accountability of decentralized institutions. This problem particularly highlights in the background of growing terrorist threat. After the terrorist attacks in Paris in the society and at the political level have repeatedly raised questions and doubts regarding the efficiency of the activities of the secret services in order to prevent similar attacks.

Traditional public administration was dominated by the aspects of following various rules and regulations and in the context of New Public Management the mission of the institution begins to be emphasized. This change basically transforms rules-based state institutions in a manner, that rules are no longer the factor that hampers innovation and modernization of management. Turning to the organization’s mission as a priority, planning of human resources and budgeting is accordingly improving, which must comply with the mission of the organization (Denhardt, Denhardt, 2006; Osborne, Gaebler 1992). We have to mention that in the course of New Public Management reforms, integration of the strategic perspective into the state governance, which first became popular in the private sector, was begun to discuss. Therefore, it was aimed to move from short-term administration, in which strategic perspective was very limited, to the implementation of long-term objectives. Traditional public administration can be understood based on the principles of M. Weber, but also on W. Wilson’s idea about public-policy formation and implementation dichotomy. Bureaucrats do not interfere in political affairs, they only technically implement instructions, so planning, in principle, would oppose to the idea (Huhges 2003).

New Public Management, as a phase of public administration modernization, using the best practices of the private sector, replaced those provisions and provided an opportunity to implement strategic planning in practice. Talking about the change of these management provisions it should be noted that disaster management is not a tactical process, which is usually characterized in the executive level of the organization, but a strategic process which aims to effectively coordinate, perform advisory functions to ensure that all levels of the organization or the entire emergency management system is guided by common objectives (Roebuck 2012).

The inter-institutional competition – the feature of New Public Management, which in many areas of public administration contributes to improving the quality of public services, is very ambiguous in disaster management. Disaster management is understood as a single mechanism characterized by institutions compatibility, rather than competition, to avoid any distortion of information which is essential to ensure optimal decision-making (Osborne 2002). The problem of information asymmetry is one of the counterarguments in favor of traditional public administration. Inter-institutional competition enhances or deepens information asymmetry.

In the context of disaster management competition is not possible because in disaster management institutional, complex interaction based on advance-formed relationships is essential, therefore it is necessary to in advance form the links based on partnership rather than competition, and it will depend on the productivity of the overall performance of public administration institutions (Survila et al. 2015a). Another relevant feature of the New Public Management, contrary to traditional, hierarchical public administration, creates greater opportunities to
include private sector to the system of disaster management establishing cross-sectoral partnership thus reducing the overall load to the state to combat threats (see Table 1). It is necessary to understand that when any community recovers from a disaster, the success of its efforts depends greatly on how quickly the predominantly private sector functions are restored (Haddow et al. 2007).

Table 1. Functions of private sector in the context of disaster management.

<table>
<thead>
<tr>
<th>Function</th>
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<tbody>
<tr>
<td>Food supply</td>
</tr>
<tr>
<td>Dissemination of disaster alerts</td>
</tr>
<tr>
<td>Temporary labor recruitment to solve a specific problem</td>
</tr>
<tr>
<td>Create jobs in such areas as health, child care at recovery stage</td>
</tr>
<tr>
<td>Aid for citizens at evacuation</td>
</tr>
<tr>
<td>Provide basic (transport, communication) services</td>
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</tbody>
</table>

Source: Prepared by the authors in accordance with Busch et al. 2013; Haddow et al. 2007.

In summary, it should be noted that the reforms of New Public Management are more significant to disaster management for their negative implications, primarily because of the loss of control responsibilities of central institutions in the context of decentralization, which is essential for efficient disaster management. Decentralized organizations have different purposes and specifics; they may be functional working in a particular area but not in disasters which require complex solutions. It should be also noted that the nature of disaster management determines that the results of this area become visible only when disaster occurs, therefore, economic ideology of New Public Management, seeking to “measure” the results of institutions, can become destructive due to continuous lack of funding for the development of disaster management resulting from lack of political will. Disaster management is oriented to the process and various factors of mitigation, preparedness, response and recovery. Only after they are accomplished in the face of a disaster the chances increase that the operational efficiency of institutions concerned will be ensured. This is the sphere that requires constant, not random attention and funding. New Public Management ideas of inter-institutional competition completely contradict the context of disaster management because it must be understood as a single mechanism, characterized by institutional coherence, partnership, establishment of advance contacts rather than competition. Among the positive aspects, we must pay attention to the fact that New Public Management, contrary to traditional, hierarchical public administration, creates greater opportunities to include private sector to the system of disaster management establishing cross-sectoral partnership, thus reducing the overall load to the state to combat threats.

5. The meaning of New Public Governance discourse to disaster management

The modernization stage of New Public Governance is important to disaster management because of the integration of new accents and innovative methods of governance. Although it must be recognized that it may be treated as a more theoretical discourse, adaptation of individual rather than systemic principles in public administration sector modernization practice. In New Public Governance hierarchic form of governance is changed to networking (inclusion of NGOs and communities into management process) the accents of economic efficiency and effectiveness of New Public Management institutions are supplemented by the elements of consensus, democratic pluralism, social justice and social responsibility, equality, ethics, accountability, citizen-orientation. Namely, the expanded role of the “third” sector in the formation and implementation of public policy becomes the key feature of the New Public Governance (Wiesel et al. 2014; Lindsay et al. 2014). New Public Governance is a new paradigm of public administration, emphasizing pluralism and providing not only a new research framework for theory research, but also a new mode of practice for the modern government of public affairs management (Xu et al. 2015).

New Public Governance embodies the changes in the provision of public services including such elements as: a) the fragmentation of needs in post modern societies; b) the evolution of plural (involving multiple organizations) and pluralist (involving multiple processes)
approaches to public services delivery;

c) a consequent need to focus upon not just inter-organizational relationships in understanding public services delivery but also the growth of public services systems comprising, inter alia, public service organizations, local communities, service users, and hard and soft technologies;

d) a shift in the balance of the key managerial skills required for delivering public services to privilege those of the governance and negotiation of needs, service delivery, and outcomes (Lindsay et al. 2014).

In New Public Governance co-operation is also emphasized. From the perspective of disaster management the involvement of different stakeholders into the management process is very important as preparation and interaction of communities, business structures and NGOs with the public authorities can improve preparedness and response to various likely to occur or already occurring threats, help to mitigate consequences of disasters, facilitate recovery process, reduce the control load of the state. Cooperation among institutions, accents of building confidence of private or third sector organizations are important because of establishing relations before disaster occurs. The lack of the relations can aggravate disaster management and the ability of institutions to act together. Networking also creates opportunities for the public and private sector institutions to simplify mutual cooperation, facilitate in obtaining information, optimize the use of resources, and help the achievement of objectives and division of functions in disaster management (Survila et al. 2015a; Vellotti et al. 2012). Trying to come back to the core values as democracy, ensuring of citizens and public interest, justice, create the possibility for disaster management, as opposed to the economization context of New Public Management, to become a priority area for politicians. This position is reinforced by the fact that, unlike traditional public administration, which focused only on process, procedures, New Public Management, which focused on measurable economic results, New Public Governance priority is both, process and results (Wiesel et al. 2014).

In summary, we note that in the context of New Public Governance the idea of hierarchy is changed to networking, the load change in disaster management occurs when public, private and third sector responsibilities are combined, orientation to procedures or result is supplemented with the orientation to process and result. New Public Governance emphasizes citizens’ needs, not moving away from the fundamental functions of the state - ensuring the welfare of citizens, at the same time the area of disaster management, it means that in the context of this model, appropriate environment for political and financial attention for disaster management is formed.

<table>
<thead>
<tr>
<th>Table 2. Change of workload in disaster management</th>
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<tbody>
<tr>
<td>Traditional public administration</td>
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<tr>
<td>Responsibilities of state institutions</td>
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</tbody>
</table>

Source: prepared by the authors in accordance with Wiesel et al. 2014, Andrews et al. 2013.

6. Neo - Weberian state and the future of disaster management

While analyzing the changes of public administration it is necessary to understand that it is a permanent process. Until now neither traditional public management nor New Public Management or New Public Governance ensured the effective implementation of public policy and smooth functioning of the public administration system (Steurer 2004). Therefore, in this section we will try to look at the theoretical aspects of the fourth emerging Neo - Weberianism, as a normative approach to public administration, and try to discuss their role in disaster management.

Pollitt and Bouckaert give the principles based on which we can define Neo - Weberian model (Pollitt, Bouckaert 2011). Weberian elements:

a) Reaffirmation of the role of the state as the main facilitator of solutions to the new problems of globalization, technological change, shifting demographics, and environmental threat;

b) Reaffirmation of the role of representative democracy (central, regional, and local) as the legitimating element within the state apparatus;
c) Reaffirmation of the role of administrative law—suitably modernized—in preserving the basic principles pertaining to the citizen–state relationship, including equality before the law, privacy, legal security, and the availability of specialized legal scrutiny of state actions;

d) Preservation of the idea of a public service with a distinctive status, culture, and—to some extent, though perhaps not as much as in the past—terms and conditions

Neo-Weberian elements:
a) shift from an internal orientation towards bureaucratic rule-following towards an external orientation towards meeting citizens’ needs and wishes. The primary route to achieving this is not the employment of market mechanisms (although they may occasionally come in handy) but the creation of a professional culture of quality and service

b) supplementation (not replacement) of the role of representative democracy by a range of devices for consultation with, and the direct representation of, citizens’ views;

c) in the management of resources within government, a modernization of the relevant laws to encourage a greater orientation on the achievement of results, rather than merely the correct following of procedure. This is expressed partly in a shift in the balance from ex-ante to ex-post controls, but not a complete abandonment of the former. It may also take the form of a degree of performance management;

d) a professionalization of the public service, so that the ‘bureaucrat’ becomes not simply an expert in the law relevant to his or her sphere of activity, but also a Professional manager, oriented to meeting the needs of his/her citizen/users.

These aspects are relevant to disaster management because they emphasize the importance of management of both the state and other interested parties. On the one hand, planning, policy development, coordination, control and organization are assigned to public administration sector institutions and are conventional to public administration, which is particularly significant to disaster management because essential role is played by hierarchy and centralization based disaster management institutions, the importance of separation limits of clearly regulated and formalized managerial or organizational functions and responsibilities. On the other hand, the value of management of communities and other interested parties in disaster management is beyond doubt to managers, which is reflected in neo-Weberian model. It allows the realization of one of the existing and widely known approaches of managing extraordinary situations, the so-called community-based disaster management (CBDM). Community involvement means that people’s contribution to the disaster management cycle can start from the basic steps in the process and end with the institutionalization in the community (Jahangiri et al. 2011).

Application of CBDM approach increases people’s capacity to respond to disasters and enables the community and other stakeholders to participate in determining threats, which they face, directs interested groups of people to take different actions in the cycle and identify ways to increase capacity i.e. human potential to adapt to the consequences of disasters to respond and recover from them. Moreover, such an approach is likely to make communities stronger for future disasters and incorporate them into planning, policy formulation, coordination, control and organization process and it related application of necessary measures designed to reduce the consequences of the disaster (Falk 2005). Thus, all stakeholders could work together with government officials and experts, people could manage problems, consequences and challenges of disaster mitigation and preparedness. This process encourages people's sense of ownership, for this reason they constantly want to participate in these activities and assume long-term commitments.

Conclusions

1. After the research on legal background of disaster management system In Lithuania, it was concluded that despite of the existing legal regulation and appointed responsible institutions, there is no clearly defined system. It is obvious that the deeper analyses of legal foundations in this field is necessary in order to provide unified vocabulary of definitions, clarify the functions of each institution and systematically harmonize and legally validate the managerial processes, which should be ready to apply in cases of disasters.
2. Traditional public administration paradigm of disaster management implies management environment which is characterized by the following aspects: formal, impersonal, hierarchical management structure, information asymmetries, procedure orientation, law as the only form of authority, closed systematic nature of institutions becomes the criterion of their effective functioning.

3. New Public Management paradigm in the context of modernization of public administration sector is significant to disaster management due to the fact that it has integrated accents of neo-liberal ideology and economic efficiency criteria of public administration institutions to the dimensions of formation and implementation of public policy, which created political opposition to permanent financing of disaster management.

4. New Public Management paradigm in the field of disaster management has included these aspects as decentralization of management, strategic planning, management based on strict rules was supplemented with the orientation to the mission of organization, expansion of the role of the private sector, introduction of privatization instruments.

5. New Public Management reforms are significant because of their negative implications, primarily resulting in the loss of control and liability of central institutions in the context of decentralization.

6. New Public Management ideas of inter-institutional competition, which completely oppose to the context of disaster management, which it must be understood as a unanimous mechanism, characterized by coordination of institutional activity, cooperation, establishment of contacts in advance, rather than competition, should also be emphasized.

7. New Public Management is significant to disaster management not as a systematic stage of public administration sector modernization but more as individual principles, such as integration of networking, or expansion of a greater role of the third sector.

8. In the context of New Public Governance responsibilities of the state, private and third sector are combined, procedure or economic result orientation is supplemented with process and result orientation. Better involvement of communities and non-governmental organizations in management creates positive environment for ensuring fundamental functions of the state, along with disaster management.

11. Neo – Weberianism, as normative approach to public administration, combines two basic approaches to disaster management: traditional, which assigns planning, policy development, coordination of activity, control and organization to public administration organizations, and the other, which ensures participation of communities and other stakeholders in managing disasters.

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Towards: Efficient Use of Resources in Military: Methods for Evaluation Routes in Open Terrain

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Abstract. A good knowledge of terrain characteristics and movement possibilities within it are crucial conditions for operations success. If a commander and his staff have enough information about the terrain, he can optimize a combat formation and its movement in an open terrain. Such as optimization can finally spare manpower as well as equipment and decrease probability of loss of life. This paper deals with a complex mathematical model of terrain passability, which respects both geographical and meteorological conditions in the terrain and with its adaptation to calculation in the environment of geographic information systems (GIS). Such a model can be directly implied into command and control system to support decision-making processes.

The main problem of an off-road vehicle movement in an open terrain consists in considering the properties of a given surface; also, technical properties of a particular off-road vehicle have to be considered. The model of terrain passability is based on measurable factors that characterize the natural environment, which is possible to calculate using the data saved in GIS databases. While calculating parameters for a complex model, it is necessary to consider data quality, which influences the level of vagueness of the resulting calculations. In order to express this level of vagueness, a method of fuzzy functions was selected and applied while calculating the individual deceleration coefficients given by the natural factors. The method of cost map was selected for the final evaluation of possibilities of vehicles movement. The complete procedure was debugged in the environment of ArcGIS 10.

Keywords: Geography, Meteorology, GIS (Geographic Information System), CCM (Cross-Country Movement), Modelling and Simulation, Off-road vehicle, fuzzy sets

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JEL Classification: O32, O33, H0

1. Introduction

For a variety of rescue and military activities taking place in the field various types of off-road vehicles are used. Their efficient application requires good knowledge of the natural environment in which they are moving or will move. However, this is not just about knowledge of this environment, but understanding its impact on the behavior of specific types of vehicles as well. If there are adequate technical vehicle data and corresponding digital landscape models, it is possible to model the behavior of vehicles in the terrain.
If a commander and his staff have enough information about the terrain and its impacts on manoeuvre of units, they can optimize a combat formation and its movement in an open terrain. Such as optimization can spare manpower as well as equipment and decrease probability of loss of lives.

Topographic maps and thematic maps focused on Cross Country Movement (CCM) were often used for terrain evaluation. However, such as evaluation is very time consuming and it is impossible to obtain precise and detail information. Digital landscape models and digital elevation models enable to gain information about movement that is more detail in a shorter time. Moreover, is possible to create several different variants of movement that will be included into complex decision-making system. In such a decision making system are evaluated also other impacts as tactical situation, danger zone, etc.

It is necessary to consider two basic conditions for a model of the behaviour of vehicles in the terrain creation – the technical parameters of the vehicles that are important because of their behavior in the terrain on the one hand, and the content, properties and quality of digital spatial data describing the terrain on the other hand.

If both conditions are fulfilled, it is possible to derive the physical models of the behavior of vehicles in a terrain (Rybansky, 2009) or (STANAG 2999, 2012) could be mentioned as the examples of such physical models. Physical models usually determine conditions of the terrain in which the vehicles can be used, or, where appropriate, to set limits for these conditions. The conditions laid down then represent the basis for the applications in a computer environment and it is possible to create computer models, often in a form of spatial analysis. The spatial analyses form a part of most of present Command and Control Systems (C2S) in which they support the decision-making processes. When limits of physical models evaluation are not considered, the final results of spatial analyses are influenced by content, precision and quality of digital spatial data used in the given model.

Complex models of terrain features can be found in geospatial databases in which all features have given properties (shape, size, location, thematic and time properties, etc.). Additional properties can be derived, for example a slope from digital elevation model. There are two different views on digital features and their properties – with or without consideration data quality and mainly their certainty or uncertainty. For example, position of a given feature stored in the geospatial database is determined by its coordinates. But its real position in the terrain may be different depending on its natural properties. Building footprints can be measured with an accuracy of centimeters, but borders of various types of soils are quite indeterminate. If uncertainty of feature properties is not considered in spatial analyses, the final results can be a bit out of reality and using them in decision-making process may cause difficulties in the future. To decrease the possibility of a wrong decision, the uncertainty of digital features must be taken into account. Application of fuzzy logic in spatial analyses is one possible and quite frequent way and it is possible to find many examples of using general fuzzy logic (Zadeh, 1965), (Ahmad & Kharal, 2009), (Sunila & Hottanainen, 2004), or its application in decision-making processes(Di Martino & Sessa, 2011), (D’Amico, Di Martino, & Sessa, 2013), (Kainz, 2007), (Svatonova & Rybansky, 2014), (Talhofer, Hoskova-Mayerova, & Hofmann, 2012).

However, it is necessary to verify thoroughly the quality of physical models, data, mathematical models, and their computer realization in practice. Only detailed verification will enable to obtain usable models suitable for implementation in the Command and Control Systems (C2S). Rybansky in his works (Rybansky, 2009) (Rybansky & Vala, 2010) states the basic physical principles vehicle movement along the ground, as well as methods for testing this movement in real geographic conditions and also respect individual properties of the landscape to assess the overall impact of the geographical environment on the move. Our goal is to model the possibilities of movement in the environment of digital geographic databases, including consideration of the quality of the data. Default models were developed to assess the possibility of moving the vehicle along the ground, and these models were subjected to comprehensive verification testing.

The following text presents the current status of development and verification of the Cross-Country Movement (CCM) model being developed at the Department of Military Geography and Meteorology of the University of Defence.
2. Materials and methods

2.1. Creation of Cross Country Movement models using fuzzy logic

Borders of many geographic elements are, however, only a consequence of human perception, not real state of things. Even in case there is a real discreet border, the borderline can be inaccurate as a result of data ambiguity or their interpretation. Vegetation or soil types are a typical example of geographic elements where there are no natural borders in space. Here, the traditional classification fails completely. However, spatial units are usually represented by sharp borders. (Brown & Hauvelink, 2007) suggests 2 types of inaccuracy that have special meaning in the area of GIS – attribute ambiguity and spatial vagueness. In the former case we are not able to confirm the occurrence of the given subject matter in the given place, the latter case is the inability to find the exact location of the given subject matter. Spatial and thematic data should not be evaluated independently. Using the theory of “soft classifications”, where “fuzzy” approaches also belong to, is a possibility how to solve these problems.

_Fuzzy sets_ (Zadeh, 1965) offer frameworks for processing predicates, whose level of veracity is given in degrees (“true up to certain level”) and uncertainty is expressed also in degrees. The concept of fuzzy sets deals with representation of classes, whose borders are not clearly (sharply) set. When a sharp border dividing the set from the surroundings is absent, there appears a problem of definite setting of affiliation of the element into the set and its supplement. (Hoskova, 2012), (Cristea, Hoskova, 2009).

Blurred or fuzzy files are then files, or classes, that do not have sharp borders. With spatial data it means that on considered places, the transition between being a part or not being a part of the file can be gradual. A fuzzy file can be characterized by fuzzy levels lying in the interval from 0.0 to 1.0, which express a gradual increase of membership up to complete membership. It can be defined using the function of affiliation.

In the environment of GIS, we distinguish three basic types of geo-elements: point, lines and areas. With lines and areas, we sometimes ask a question, how to set exact borders of the given geo-element. If there is an area layer that notes ecological stability of a certain area, we only have two possibilities how to express the stability: stable x unstable. Such classification is very difficult and depends on the person of the decision-maker and on the concrete area.

One of the basic features that can be defined when creating and saving geographical objects is topology. Topological relations characterize relative placement of two spatial objects with regards to its mutual position – e.g. if they touch, overlay, or contain each other. In GIS they are important especially to define spatial queries and selections and play a significant role in using SQL language. In case of fuzzy objects, however, traditional topological predicates fail and their fuzzy variants that are able to answer queries such as the following ones come into account:

- Do areas A and B overlay at least partly?
- Does area A contain area B, at least partly?
- Which areas are partly inside area B?

The fact that affiliation of an element to fuzzy topological predicate is expressed by a set [0,1], however, complicates its direct use in SQL language and thus in the potential spatial queries.

Relations between created fuzzy sets are then analyzed using fuzzy overlay operation.

Six basic models were created in order to find a route. Using these models helps to create so-called Cost Map, which is a raster file that is a basic input underlying for creation of a file of the looked-for route. A cost map is created by application of overlaying operations, in this case using so-called Map algebra, which gives tools for working with raster files. To set the complete deceleration coefficient when moving through terrain, relations stated in the elaborated methodologies were used.
Models for calculation of the individual coefficients were formed using basic operations with raster data by means of in-built tools of “Spatial Analyst” module, which is an extension of ArcGIS system, and also using tools of map algebra – file of operators and functions to work with raster data. (Talhofer, et. al., 2009).

Raster layers which were formed by calculation (e.g. raster elevation model) or by conversion of vector data according to appropriate attributes were used as input data. This data base was formed as definite data with clearly defined objects and their borders.

Another step when solving CCM issue is the introduction of some uncertainty causing bigger activity when making decisions about using the gained results. For each deceleration coefficient there was a new process model created, which applied the principles of fuzzy logic. For the solution of the individual models, various approaches had to be used regarding the character of its input data and the result which was supposed to be reached. The common denominator of a solution for all coefficients is the use of linear fuzzification function and calculation of distance for blurring the borders of objects (e.g. 100 meters for soils) (Talhofer, et. al., 2015).

2.2. Theory of Cross Country Movement

The main goal of the Cross Country Movement (CCM) is to evaluate the impact of geographic conditions on of a movement of vehicles in terrain. For the purpose of classification and qualification of geographic factors of CCM, it is necessary to determine (Rybansky, 2009), (Rybansky & Vala, 2009), (Rybansky, 2013), (Svatonova & Rybansky, 2014):

- particular degrees of CCM
- typology of terrain practicability by kind of military (civilian) vehicles
- geographic factors and features with significant impact on CCM

As a result of the geographic factors impact evaluation we get three degrees of CCM: passable terrain, passable terrain with restrictions, or impassable terrain.

The impact of geographic factor can be evaluated as a coefficient of deceleration ‘Ci’ from the scale of 0 to 1. The coefficient of deceleration shows the real (simulated) speed of vehicle $v$ in the landscape in the confrontation with the maximum speed of given vehicle $v_{\text{max}}$. The impact of the whole 7 basic geographic factors can be expressed by the formula:

$$ C = \left[ \max(C_1, C_2, \ldots, C_6) \right] C_7 $$

The main coefficients of deceleration are listed in Table 1.
Table 1. Main coefficients of deceleration

<table>
<thead>
<tr>
<th>Basic coefficient</th>
<th>Geographic signification and impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$</td>
<td>Terrain relief (gradient of terrain relief and micro relief shapes)</td>
</tr>
<tr>
<td>$C_2$</td>
<td>Vegetation cover</td>
</tr>
<tr>
<td>$C_3$</td>
<td>Soils and soil cover</td>
</tr>
<tr>
<td>$C_4$</td>
<td>Weather and climate</td>
</tr>
<tr>
<td>$C_5$</td>
<td>Hydrology</td>
</tr>
<tr>
<td>$C_6$</td>
<td>Build-up area</td>
</tr>
<tr>
<td>$C_7$</td>
<td>Road network</td>
</tr>
<tr>
<td>$C_8$</td>
<td>Other factors</td>
</tr>
</tbody>
</table>

The impact of the $C_8$ factor is not precisely determined yet.

These coefficients will be thereinafter indexed and classified into particular discrete factors as it is given in Table 2:

Table 2. Particular coefficients of deceleration

<table>
<thead>
<tr>
<th>Particular coefficient</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_{11}$</td>
<td>Slope gradient</td>
</tr>
<tr>
<td>$C_{12}$</td>
<td>Microrelief</td>
</tr>
<tr>
<td>$C_{21}$</td>
<td>Spacing between stems</td>
</tr>
<tr>
<td>$C_{22}$</td>
<td>Stem diameter</td>
</tr>
<tr>
<td>$C_{23}$</td>
<td>Tree height</td>
</tr>
<tr>
<td>$C_{24}$</td>
<td>Type of tree</td>
</tr>
<tr>
<td>$C_{25}$</td>
<td>Nature of root system</td>
</tr>
<tr>
<td>$C_{31}$</td>
<td>Soil type</td>
</tr>
<tr>
<td>$C_{32}$</td>
<td>Kind of soil</td>
</tr>
<tr>
<td>$C_{33}$</td>
<td>Soil-forming substrate</td>
</tr>
<tr>
<td>$C_{41}$</td>
<td>Dry season</td>
</tr>
<tr>
<td>$C_{42}$</td>
<td>Moist season</td>
</tr>
<tr>
<td>$C_{43}$</td>
<td>Wet season</td>
</tr>
<tr>
<td>$C_{44}$</td>
<td>Kind of waters</td>
</tr>
<tr>
<td>$C_{51}$</td>
<td>Depth</td>
</tr>
<tr>
<td>$C_{52}$</td>
<td>Width</td>
</tr>
<tr>
<td>$C_{53}$</td>
<td>Flow speed</td>
</tr>
<tr>
<td>$C_{55}$</td>
<td>Characteristics of bottom</td>
</tr>
<tr>
<td>$C_{56}$</td>
<td>Characteristics of bank (bank slope)</td>
</tr>
<tr>
<td>$C_{61}$</td>
<td>Block built-up area</td>
</tr>
<tr>
<td>$C_{62}$</td>
<td>Uptown</td>
</tr>
<tr>
<td>$C_{63}$</td>
<td>Cottage built-up area</td>
</tr>
<tr>
<td>$C_{71}$</td>
<td>Highway</td>
</tr>
<tr>
<td>$C_{72}$</td>
<td>1st category road</td>
</tr>
<tr>
<td>$C_{73}$</td>
<td>2nd category road</td>
</tr>
<tr>
<td>$C_{74}$</td>
<td>3rd category road</td>
</tr>
<tr>
<td>$C_{75}$</td>
<td>Hardened way, forest and cart way</td>
</tr>
<tr>
<td>$C_{81}$</td>
<td>Technical factors</td>
</tr>
<tr>
<td>$C_{82}$</td>
<td>Personnel factors</td>
</tr>
<tr>
<td>$C_{83}$</td>
<td>Environment</td>
</tr>
<tr>
<td>$C_{84}$</td>
<td>Characteristics of activity</td>
</tr>
</tbody>
</table>
The individual deceleration coefficients $C_1 - C_8$ are computed as the products of particular coefficients within each group. The overall coefficient $C$ is calculated with respect of formula (1) while it ranges from 0 to 100%. It can be therefore stated, that resulting speed of the vehicle movement is a function of all the deceleration coefficients:

$$v = f(v_{max}, C_1, C_2, \ldots, C_8)$$ \hspace{1cm} (2)

For given vehicle (its technical properties) the values of deceleration coefficients are calculated from ascertained properties of geographic objects stored in the spatial geo-database. Using formula (1) it is possible to create a cost map in which the value of each pixel is the final (modeled) speed. The cost map can be used as a source for calculation of the fastest path, the most reliable path etc.

### 2.3. Creation of process models for deceleration coefficients

According to CCM theory (Rybansky & Vala, 2010), individual coefficients of deceleration $C_1$ to $C_7$ were calculated, based on which the complete cost map for a given vehicle was calculated. The simulated speed of the given vehicle in the given pixel was once again taken as a pixel cost in the cost map. In the cost maps the cheapest - in this case the fastest paths - from the initial point to the destination was calculated. The destination was purposely set away from settlements in free terrain and away from communications.

The complete calculation was based on the mathematical model and programmed in the environment Model Builder of ArcGIS system. In the picture (Figure 1) is the example of model of calculation.

![Figure 1. Example of data procedure model in ArcGIS ModelBuilder](image)

In the model, there are next shapes and colors:

- **Dark gray oval**: Input data in vector or raster format
- **Rectangle**: Designation of various types of processes or operations with data
- **Gray oval**: Output of processes

Furthermore, there are stated specific procedures of calculations of individual coefficients.

### 2.4. Calculation of the individual coefficients

Certain processes that differ only in the input conditions repeat with all coefficients. These are selection processes as well as conversional ones, etc. For solution of vagueness, in-built processes FuzzyMembership (FuMeSh) and FuzzyOverlay are used. While the use of FuMeSh is different, FuOv are the same for all coefficients. Conditions for FuMeSh are dependent on geometric accuracy that show the types of geographical objects in the database. Calculation of coefficients $C_i - C_j$ was published at (Hofmann, Hoskova-Mayerova,
Talhofer, & Kovarik, 2014). Just for illustration, we present calculation of \( C_2 \) coefficient. Coefficient \( C_2 \) has not been calculated yet because the system is not connected to the on-line meteorological data (Dejmal & Repal, 2010), (Dejmal, Hudec, Novotny, & Repal, 2010).

Except coefficient \( C_1 \), the rest coefficients are calculated similarly. As the calculation of \( C_1 \) coefficient is a bit complicated and different, we present it in the following paragraph.

2.4.1. Calculation of coefficient \( C_2 \): Vegetation cover

The input layer for calculation of coefficient is a polygonal layer of forest units \( a \_lesy\_a \), in which forest units are classified according to species of trees (parameter of kind of vegetation and trees \( VE1 \) \( a \) \( VE2 \)), according to trunk diameter (parameter Stem Diameter SDS) and spacing between trees (parameter Tree Spacing – TSC). In the first step, separation of objects from the surroundings is done and the resulting layer is saved as a polygonal layer \( a\_lesy\_a\_Select \). Then there are three parallel branches. The first branch works with a trunk diameter, the second with spacing between trees and the third considers uncertainty in the position.

The first branch begins with a conversion of vector format into a raster where the result is saved in layer \( \text{lesds} \). With the help of Raster Calculator all pixels that do not display any values (NoData) are eliminated and the result is saved into file \( \text{rastercalc1} \). This step is dependent on the way data are digitalized. It is necessary in case of using an older version of ARC/INFO; if the version ArcGIS is used, it is possible to skip it. This file is ready for the subsequent fuzzification according to possible SDS values and for the fuzzification itself function \( \text{FuMeSh} \) is used, with the help of which the associated values in the area of fuzzification lie in the range 0.09–0.14, since tree cross-sections of up to 0.09 m do not present a problem for passability. In the range between 0.09 – 0.14 m, they enable only a limited passage. For SDS the conditions are as follows:

\[
\mu(x) = \begin{cases} 
0, & x \leq 0.09 \\
0.14 - x, & 0.09 < x < 0.14 \\
0.14, & x \geq 0.14.
\end{cases}
\]

The result is saved in file \( \text{c22} \).

In the second branch, the polygon is also transformed into a raster depending on parameter TSC and the result is saved on a raster layer \( \text{lestsc} \). The resulting raster layer is tested for belonging to the object. If a cell lies in an object, it is given value 1. If the cells contain value NoData, the value of the cell is changed into 0. The resulting raster layer containing now only values 0 or 1 is saved in layer \( \text{ratrcalc9} \). Then a selection test of existence of parameter TSC itself is done, it is possible to describe it in the following expression:

\[
\text{if } x = \begin{cases} 
0, & TSC = 0 \\
x, & \text{otherwise}.
\end{cases}
\]

The result is saved in file \( \text{con\_rasterca9} \). As for further calculations real numbers are necessary, the previously obtained integral values are divided by 10 with the help of command Divide. The result is saved in file \( \text{Divide\_Recla1} \). Vegetation is considered to be passable if the spacing between trees is more than 5 meters, and completely impassable if the spacing between trees is less than 3 meters. That is why with the help of Fuzzy Membership function, fuzzification is carried out according to TSC with the range of values 0.3 – 0.5 in this way:

\[
\mu(x) = \begin{cases} 
0, & x \leq 0.3 \\
0.5 - x, & 0.3 < x < 0.5 \\
0.5, & x \geq 0.5.
\end{cases}
\]
The result is saved in file c21.

The third branch begins with the calculation of Euclidean distance from the outer border of polygon of forest areas. The result is saved in file EucDist_a_le1. Then the process of fuzzification follows with the help of linear FuMeSh function. As the real uncertainty in the position of forest borders is up to 20 meters, fuzzification is done in the range between 0-20 meters from the forest perimeter with associated values 0-1 in this way:

\[
\mu(x) = \begin{cases} 
1, & x = 0 \\
\frac{20 - x}{20}, & 0 < x < 20 \\
0, & x \geq 20
\end{cases}
\]

The fuzzified layer is saved in file FuzzyMe_EucD1.

The results of all three branches now with the help of Fuzzy Overlay function overlay in such a way that a choice of maximal value of the given pixel is made with the help of OR function. The complete result of calculation of coefficient \(C_2\) is saved in file c2fuzzy.

2.4.2. Calculation of coefficient \(C_7\) - Road network

The input layer for the calculation of coefficient is a line layer of communications (\(a_{kom\_l}\)) in which communications are classified according to categories given by parameter TUC (Traffic User Code). (Talhofer & Hoskova-Mayerova, 2015). With regards to the fact that within this layer all communications – including water, air, etc. - are saved, in the first phase it was necessary to choose only land communications. The selection was done by the function SELECT with logical operators OR and a vector layer \(a_{kom\_l}\_Select\) was obtained. This vector layer was transformed into a raster layer with a pixel size of 5 meters in the first phase, 1 meter in the second one. The value of a pixel was value \(TUC\), for empty pixels value NODATA was automatically filled in. As the number of significant TUC was maximally 8, this layer was then reclassified to values 2 to 8, NODATA was reclassified to value 20. See Figure 2:
The result of the reclassification was saved in the layer Reclass_a_kol. Division by 10 followed, which created another reclassified raster layer Divide-Recla4, where pixel values lie in the range between 0 and 2. At the very end, it was divided once more, this time by 2, where pixel values lie in the required range between 0 and 1.

As the used data had the positional accuracy given by a standard error of 5 meters, in a parallel branch for modelling of vagueness in position, fuzzification with the help of a linear function was used. For the layer a_kom_l_Select the zone of vagueness was calculated with the help of a distant function Euclidean_Distance which created covering buffer of both sides of definition polygon. We did not use the possibility of limitation of buffer calculation into a certain number of meters because doing that would create pixels with NODATA information which would have to be removed in the following course. The result of the calculation was saved in the raster layer EucDist_a_kol. Within 10 meters from the axis of communications a new raster layer FuzzyMe_Euc11 was created with the help of fuzzy Membership tool as follows:

$$f(x) = \begin{cases} 
1, & x = 0 \\
\frac{10 - x}{10}, & 0 < x < 10 \\
0, & x \geq 10.
\end{cases}$$

It does not have any significant meaning for communications; unlike for forests or lands, nevertheless, from the point of view of work methodology it was considered.

The raster layer of communications Divide_Recla4 was – with the help of FuzzyOverlay function – joined with the layer of membership FuzzyMe_Euc11 using logical operator OR in such a way so that the resulting relation ensured the most favorable cost of a pixel for communication (i.e. maximal value is chosen). The result of the relation was saved in layer FuzzyOv_Divil. As deceleration coefficient $C_7$ gets values in an interval $<0,1>$, in the end it was necessary to divide layer FuzzyOv_Divil by 10. The resulting value of coefficient $C_7$ was in layer c7fuzzy.

### 2.4.3. Calculation of the total deceleration coefficient

The final deceleration coefficient is calculated from the individual files cxfuzzy with the help of tool Fuzzy Overlay (see Figure 3). The first 6 coefficients enter the calculation with the help of relation $\max\{C_1, C_2, C_3, C_5, C_6\}$. The resulting value is multiplied by a raster of coefficient $C_7$ by reason of assigning meaning of the individual communications according to traffic importance (highways, first-class roads, forest roads, etc.). The result is the cost map that can be an input for searching of an optimal route in a decision-making process in CCM.

![Figure 3. Model of final coefficient of deceleration evaluation](image)
The final deceleration coefficient is calculated from the individual files with the help of the Fuzzy Overlay tool. The first five coefficients enter the calculation with the help of relation max\{C_1, C_2, C_3, C_4, C_5\}. The resulting value is multiplied by a raster of coefficient C_7 by reason of assigning meaning of the individual communications according to traffic importance (highways, 1st class roads, forest roads, etc.). The result is the cost map that can be an input for searching of an optimal route in a decision-making process in CCM (Figure 4).

![Figure 4. A part of the cost map calculated for PANDUR II](image)

3. Methods used for verification of data and model quality

Current research in this domain is usually focused on assessing partial characteristics of vehicles and their interaction with geographic environment. The aim of our work was to verify behavior of the whole model in the real environment in which the Czech Army units currently operate or might operate in the future.

3.1. Preparation phase

The vehicle movement models were verified in terrain tests in the Brezina military training area that is located about 40 kilometers northeast of Brno. The aim of the tests was to evaluate whether the models are functional or not. The tests were prepared in a way that selected vehicles can move anywhere within the area of 5 by 5 km. That area is commonly used for tactical training of small military units therefore the ground is covered with a number of trenches, lowered and elevated areas for placing targets, and other terrain obstacles. The area is partially covered with vegetation with a height of up to 3 m. There are also a number of tracks whose positions are not permanent and vary over the years (Rybansky, et. al., 2015), (Talhofer&Hoskova-Mayerova, 2016).

The following types of military vehicles were used for testing:
- the cross country vehicles UAZ 469.
- the medium lorry TATRA 810;
- the armoured personnel carrier PANDUR II;
Selected technical and operational parameters of the vehicles are shown in the Table 3.

The fundamental goal of testing was to find the degree of usability of modelling results using the above mentioned physical, mathematical, and information models in the real application in decision-making processes in the C2S systems. This goal was complemented by several collateral goals that were to specify partial coefficients of general capabilities of particular drivers and their ability to drive at difficult night conditions, and also to specify the coefficient of weather conditions. One of the goals was checking the quality of geographic data using the independent surveying in the field.

During the preparation phase of testing it was necessary to generate cost maps of a given area for each tested vehicle. Computations were performed using the following data: the DMU25 vector database; the digital elevation models DMR3, DMR4, and DMR5; and the soil database. The combinations of used data are presented in Table 4.

Computations resulted in 15 different cost maps keeping the values of model deceleration coefficient in each pixel. The maps contained also highlighted waypoints. The optimal routes were computed between these points and the drivers were to follow these routes during field tests. The total length of the routes was approximately 13 kilometers.

### 3.2 Field testing

Field tests took place 6 and 7 May 2014. (Hoskova-Mayerova & Hofmann, 2016). Each vehicle drove through given waypoints several times at different times of the day and they were to follow the assigned routes according to the following scenario:

- Routes calculated from combination K5:
  - the first pass of a vehicle using the assigned route and recording of the actually passed route in GPS - recognition pass
  - repeated passes of a vehicle using the assigned route and recording of the actually passed route in GPS - pass at maximum speed possible, the same driver
  - pass of a vehicle using the assigned route at degraded visibility conditions (dark) and recording of the actually passed route in GPS - pass at maximum speed possible, the same driver
- Routes calculated from combination K3 and K4:
  - passes of a vehicle using the assigned route and recording of the actually passed route in GPS
Each vehicle has been thoroughly documented in advance and all their current performance characteristics were measured using dynamometry. Also, the required characteristics of all drivers (military personnel) were recorded, especially their age and the length of their experience with a particular vehicle.

The soil samples were collected at various locations of the testing area for the purposes of the soil database verification. In the laboratory, these samples were analyzed for their actual composition and their humidity. Also the current meteorological elements were measured during testing, i.e. air temperature and humidity, visibility and light intensity. Unfortunately, just at the time of testing, there was a long-term drought at the area, which significantly affected the opportunity to verify the coefficient of meteorological conditions.

The actually passed routes were recorded at the time interval of 2 seconds using the three GPS Trimble receivers with the external antennas - Geoexplorer XT, XT3000, and XT6000 - and the TerraSync software suite. Collected data were later post processed and corrected using the CZEPOS permanent reference station network and the PathFinder software suite. The typical accuracy of obtained points after all corrections was 1.8 meters.

A total of 34 passes were made. During the tests or shortly after them the locations with very difficult terrain conditions were selected in the area. These locations were mapped in detail using the total stations Leica Tc 1500 and the numerical tacheometry method in order to obtain the independent surveying for the data quality check.

![Figure 5. Part of measured track of TATRA 810 (black dots are GPS positions)](image)

3.3 Data analysis

The data from the terrain represent a rich material which is currently being analyzed. The following text presents only partial results of quality evaluation of the system of deceleration coefficient computation (Hoskova-Mayerova & Hofmann, 2016).

The individual points of actually passed routes were obtained from corrected GPS data where each point kept parameters such as current UTM coordinates, UTC time, distance traveled, horizontal speed, or speed on a physical surface (Hoskova-Mayerova & Talhofer, 2016).

These points were transformed into a raster of resolution of 1 by 1 meter with horizontal speed as a pixel value. Using a map algebra the differences were derived between modelled and real speed of a given vehicle in a given cost map data combination (see Figure 6).
Differences were stored into Attribute Table. Its structure illustrates following picture (Figure 7):

![Attribute Table Structure](image)

**Figure 7. Attribute table structure**

From the statistical point of view is interesting the histogram of differences between modelled and real vehicle speed. Next picture shows a histogram of such differences of off-road vehicle PANDUR II.
4. Discussion

As already mentioned in the preceding text, the individual deceleration coefficients were derived on the basis of field testing. Furthermore, a comprehensive physical, mathematical, and information model for the system of evaluation of possibility of a vehicle free movement through the open terrain. Described field tests were the first comprehensive examining of the functioning of the entire system on a relatively large area. It is therefore obvious, that not all the expectations regarding to the models we had, were met. The following text presents major problems that were encountered.

4.1. Creating cost maps and their accuracy

Our goal was to create cost maps with the highest possible resolution using standard geographic data that are commonly used in the Czech Army. Therefore it was decided to use a pixel size of 1 m. This resolution worked well in the areas without any roads. However, the problems occurred when for example a track without the attribute of the feature width was present in the forest that was evaluated as not passable feature. Resulting cost map then showed a line of 1 m pixels having a favorable coefficient of deceleration, but all the adjacent pixels had the coefficient of deceleration equal 1, i.e. the vicinity of the track was evaluated as not passable. The similar visualization can be seen in (Kubiček & Šašinka, 2011). In fact, the track had a width of 4 m (see Figure 9) and the vehicle was able to pass easily even in these locations. (Svatonova, 2015)
Figure 9. Superposition of the cost map (gray scale), measured vehicle position (PANDUR II, red dots), and orthogonalised aerial image

For this reason, there are also negative values of differences in speed in the histogram (Figure 8). The solution to this problem lies in another setting of fuzzification when calculating the cost maps. Due to the real width of roads, the interval of fuzzification was chosen two meters on each side of the axis of the road. Thanks to this, the coefficient of deceleration was changed in such a way that and the coefficient $C_7$ was really equal to 1 only out of the road. The recalculated cost map is on the following figure and the next figure (Figure 10) is again superposition of the cost map (gray scale) and measured vehicle position (PANDUR II, red dots) (Hosková-Mayerová & Hofmann, 2016).

Figure 10. Recalculated cost map and superposition with the recorded track log

4.2. Overestimation of the model

Another problem is the overestimation of speed calculations. As is evident from the next table (Table 4) validated model is significantly more optimistic compared to the reality. The overestimation of the model occurred in spite of the fact that the climatic conditions at the time of tests allow drivers to go fairly high speed, and that we had an experienced driver who knows the area perfectly. The standard deviations of the individual vehicles are similar. From this fact we can conclude that there will be a systematic effect that it would be appropriate to incorporate into existing models.

After discussions within the research team and with the drivers, we have reached the conclusion that it is necessary to also work with the psyche of the driver, in addition to more accurate modeling, calculation of the deceleration coefficients, and including the coefficient of the surface roughness. If the driver is convinced that even in a slightly covered terrain (tall grass, low self-seeded trees), there will be no small micro relief obstacles, he can drive relatively fast, even though he can’t see the road completely.
However, if the surface is grooved by the micro relief obstacles as in the test area, the driver will have psychological barriers to go with the maximum speed of the vehicle. Tilt of the vehicle and its aftershocks will force him to slow down.

The mental obstacle mentioned above can be expressed by another slowdown coefficient, whose derivation we are presently starting to work on.

4.3. Modelling and reality

Designed and tested model gives only an idea about the conditions in which the specific vehicle is located and whether it is in terms of landscape surface configuration and landscape cover under the given climatic and meteorological conditions passable.

On the basis of verification tests and thorough analyzes it can be expected that it will be possible – fairly reliably – to determine whether the vehicle or group of vehicles can move in such a terrain.

Further progress in the development of models can be expected on the basis of its application in specific tasks solved within the command and control process. For example, it can be the deployment of troops in given area and given time, assessment of the possibility of fast and hidden movement, etc. In this case it will not be only an expression of the ability of a vehicle to pass through given section, but also direct involvement of the proposed model into command and control system.

Conclusion

The performed tests proved that each model is functional and together they will enable to partially, yet objectively, evaluate the passability of the terrain by different vehicles. They also proved the applicability of standard geographic data for evaluating this passability. Simultaneously, however, they detected the weaknesses of the solution. Nevertheless, they indicated how to deal with these weaknesses.

In 2015, the research team carried out similar tests of more specified model under the same scenario and bigger area of military district Libavá. Received data are now being evaluated. Based on the detailed analyses of influence of the individual factors on the resulting deceleration coefficient, it is necessary to precise especially:

- Expression of roughness of the terrain surface;
- Expression of terrain surface type (clay, grass, leaves, stones, etc.);
- Expression of influence of drivers’ skills;
- Expression of influence of meteorological conditions;
- Expression of light conditions.

When calculating cost maps for stable linear objects that do not have attributes of width specified in the database, it is necessary to calculate with a broader zone for fuzzification that corresponds to the presumed character of the object (field and forest roads, tank routes).

In the following phases, especially analyses of data from the route records will be done. It is presumed:

- Analysis of speed deviations in homogenous parts of routes (the same character from the point of view of surface roughness, its cover, surrounding space, etc.);
- Creation of CM variants with variously set deceleration coefficients and analysis of speed deviations according to variant coefficients;
- Detailed evaluation of the influence of the quality of underlying data on the resulting speed deviations.

It will also be tested in real conditions in a larger area with more vehicles. See (Hoskova-Mayerova & Talhofer, 2016). Complex conception of tests of CCM model is only a starting point of the whole system of verification of the system of deceleration coefficients, as well as their values. The research team is fully aware that the used models (physical, mathematical and information) currently contain a lot of drawbacks. Also there appeared
some problems with recording the driven routes by GNSS receivers. The stated problems, however, are now being solved and they will be responded to in the upcoming experiments.

Acknowledgement

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SECURITY AND SAFETY ENFORCEMENT: EXECUTION PECULIARITIES

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Abstract. From the very beginning of existence of society, there also existed crime, in one or another its ways of manifestation. Historically the punishment tool and the goal of the punishment was greatly dependent on the existing authority, political system, traditions and scale of values in society.

The authors of the article, continuing with scientific publication cycle, which is dedicated to execution of sentence of imprisonment in Latvia and security aspects of the places of confinement, the authors offer to become familiar with the study about peculiarities of execution of the sentence of imprisonment and security aspects in the places of confinement with respect to the persons sentenced with deprivation of liberty for life (life imprisonment).

Undeniable is the fact that imprisonment for life (life imprisonment) is the severest type of criminal punishment in Latvia, and its execution requires a special approach. The requirements regarding the regime of execution of the punishment and security with relation to the persons sentenced with deprivation of liberty for life (life imprisonment) are much stricter than with relation to the other convicts, thus the study obtains the status of vitally important topicality.

This article reflects the results of the conducted study on peculiarities of execution of the sentence of imprisonment in respect to the persons sentenced with deprivation of liberty for life (life imprisonment) in Latvia. The article identifies issues and suggests possible solutions.

The aim of this study is to conduct the analysis of the existing norms of The Sentence Execution Code of Latvia regarding the persons sentenced with deprivation of liberty for life (life imprisonment) and their implementation in practice, as well as their compliance with generally accepted human rights, international norms and standards and the norms and standards of the Council of Europe. Based on the study there has been developed a series of recommendations for the staff of places of confinement working with the persons sentenced with deprivation of liberty for life (life imprisonment), as well as pointed out the necessity to make amendments to the norms of The Sentence Execution Code of Latvia.

The authors suggest that the drawbacks and issues discovered within the framework of this study, as well as proposed solutions will make a significant contribution to the development of the punishment execution rights theory in Latvia. It will be possible to improve the sentence of imprisonment execution legal framework and practice by using new scientific cognitions stated in this study.

Keywords: imprisonment, execution of the sentence, the persons sentenced with deprivation of liberty for life, life imprisonment, regime, resocialization, human rights.


JEL Classifications: K1, K14, N43
1. Introduction

From the very beginning of existence of society, there also existed crime, in one or another its ways of manifestation. During the human evolution the types of punishments have changed and in different centuries in and in various parts of the world they have been different. They changed from the different types of corporal punishment, torture and the death penalty, in their various forms, to a variety of alternative punishments, which are not related to violence against the guilty person. Over the course of many thousands of years the humanity has been relentlessly “followed” by crime and by motive of the punishment. The different aspects of the punishment have been analyzed by many representatives of their day, creating new theories and ideas that have transformed also within society of the beginning of 21st century. Psychological process of the crime creates a moral requirement for the punishment: The crime, in its turn, is a protest against “abnormalities” of the social order (Banga 2005). Historically the punishment tool and the goal of the punishment was greatly dependent on the existing authority, political system, traditions and scale of values in society. The punishment was and still is considered to be the most effective means of protection of one’s rights and interests. However, the society’s conception about the nature, tasks and importance of punishment have significantly changed over the time (Shkavronska 2010).

The authors of the article, continuing with scientific publication cycle, which is dedicated to execution of sentence of imprisonment in Latvia and security aspects of the places of confinement, the authors offer to become familiar with the study of peculiarities of execution of the sentence of imprisonment and security aspects in the places of confinement with respect to the persons sentenced with deprivation of liberty for life (life imprisonment). The readers can familiarize themselves with authors’ previous scientific publications, which are dedicated to peculiarities of execution of the sentence of imprisonment and security aspects in the places of confinement with respect to convicted women and with respect to convicted minors, in 2014 issue of “Journal of Security and Sustainability Issues No.3 (3)”, and in 2015 issue of “Journal of Security and Sustainability Issues No.4 (3)”, as well as about that problematic issues in this area were studied by researchers Teivans-Treinovskis J. and Lavrinenko O (2016), Avdeev V., Avdeeva O.; Gribunov O.; Sergevnin V. (2016).

Section 94 of the Constitution of the Republic of Latvia provides that everyone has the right to liberty and security of person. No one may be deprived of or have their liberty restricted, otherwise than in accordance with law, and Section 95 of the Constitution provides that the State shall protect human honor and dignity. Torture or other cruel or degrading treatment of human beings is prohibited. No one shall be subjected to inhuman or degrading punishment.

Imprisonment is not the state’s or society’s revenge on a convicted person for the offense. Its aim is to restore justice, to prevent potential future recurrence of the offenses and to deter others from following this example. However, the most important task in this whole complex is not to isolate the guilty person from the society, but to do everything possible so that during the time of imprisonment this person would receive education, profession, change his/her way of thinking, and, coming out through the prison gate, would start a full life (Luksa 2013).

Recommendation Rec (2006) 2 of the Committee of Ministers to member states on the European Prison Rules particularly stresses that the enforcement of custodial sentences and the treatment of prisoners necessitate taking account of the requirements of safety, security and discipline while also ensuring prison conditions which do not infringe human dignity and which offer meaningful occupational activities and treatment programmes to inmates, thus preparing them for their reintegration into society.

This article reflects and analyzes the results of the conducted study on peculiarities of execution of the sentence of imprisonment in respect to the persons sentenced with deprivation of liberty for life (life imprisonment) in Latvia. This article studies the peculiarities of execution of the sentence of imprisonment in respect to the persons sentenced with deprivation of liberty for life (life imprisonment), identifies issues and suggests possible solutions. Undeniable is the fact that imprisonment for life (life imprisonment) is the severest type of criminal
punishment in Latvia, and its execution requires a special approach, thus the study obtains the status of vitally important topicality.

Significant changes in criminal policy of the Republic of Latvia started with The Concept of Criminal Punishment Policy approved by the Ministry of Justice of the Republic of Latvia as of January 9, 2009, where it was recognized that the stricter punishments are enforceable only in cases where, if, pursuant to the circumstances of the case, the personality of the guilty person and mitigating and aggravating circumstances, there has been concluded and motivated that other alternatives to the imprisonment are unsuitable. Whereas, by enforcing the punishment, which does not provide an actual serving of sentence of deprivation of liberty, it is important to indicate the facts, due to which it has been decided not to enforce a actual punishment of deprivation of liberty (Saulite 2008). According to amendments to The Criminal Law, as of December 1, 2011, from the first part of the Section 36 has been removed the death penalty, in respect to which there has been set a moratorium since 2006, because the right to life is one of the main values of democratic society (Luse 2011). In addition to the above, in recent years the significant amendments have been made also to norms of The Sentence Execution Code of Latvia, which affect execution of sentence of imprisonment in places of confinement with respect to the persons sentenced with deprivation of liberty for life (life imprisonment).

The aim of the authors of this study is to conduct the analysis of the existing Sentence Execution Code of Latvia, and its binding Cabinet of Ministers regulations norms analysis with respect to the persons sentenced with deprivation of liberty for life (life imprisonment), as well as their compliance with generally accepted human rights standards. Based on the study there has been developed a series of recommendations for the staff of places of confinement working with the persons sentenced with deprivation of liberty for life (life imprisonment), as well as pointed out the necessity to make amendments to the norms of The Sentence Execution Code of Latvia.

The authors suggest that the drawbacks and issues discovered within the framework of this study, as well as proposed solutions will make a significant contribution to the development of the punishment execution rights theory in Latvia. It will be possible to improve the sentence of imprisonment execution legal framework by using new scientific cognitions stated in this study.

The authors of the article completely agree with the statement of former Minister of Justice J. Bordans that in recent years the punishment execution policy has played a secondary role in the state administration priority list. Politicians have been paying a lot more attention to the form of punishment execution, for example, construction of new prison facilities, by putting into second place the punishment execution content issues, namely, resocialization of offenders. At the same time, it must be recognized that as the result of qualitative punishment execution process it is possible to create a safer society preventing offense relapse. The reduction of relapse into crime in punishment execution is essential, because as a result of this process the work of the police, prosecution and judicial work is concluded. It is important so that the person, who has committed an offense, would not commit it repeatedly (Bordans 2014).

2. The persons sentenced with deprivation of liberty for life (life imprisonment) in places of confinement of Latvia

The third part of the Section 38 of the Criminal Law provides that in cases specifically provided for in this Law, deprivation of liberty may be determined for life (life imprisonment). The punishment provided by the Criminal Law on the basis of the first part of the Section 35 of the Criminal Law is a compulsory measure which a court, within the limits of this Law, adjudges on behalf of the State against persons guilty of the commission of a criminal offence or in the cases provided for by law, determined by a public prosecutor by drawing up a penal order, with the objective, which is laid down in the second part of the Section 35 of the Criminal Law, i.e. to protect the public safety, to restore justice, to punish the offender for a committed criminal offence, to resocialize the punished person and to achieve that the convicted person and other persons comply with the law and refrain from committing criminal offences. In addition to the above, Section 8 of The
Sentence Execution Code of Latvia provides that the purpose of the execution of punishment is to apply all the provisions of the execution of a punishment laid down in this Code to the convicted person, thereby ensuring the resocialization of the person and his or her lawful behavior after execution of the punishment. Currently, it is clear that the idea of dying-off of crime is utopian, but the crime itself is the accompanying element of any industrial society. These contradictions, in course of evolution of society, are ineradicable; that is why this entails only restriction of crime, stopping it at the acceptable level rather than completely eradicating it (Teivans–Treinovskis 2009).

Undeniable is the fact that imprisonment for life (life imprisonment) is the severest type of criminal punishment, and its execution requires a special approach. Both within society and within penitentiary systems of many countries it is believed that all life-sentence persons, also after being sentenced and being placed into place of confinement, continue to be extremely dangerous, because the offenses committed by these persons are more grave and more cruel than other types of offenses. From this viewpoint there follows the approach that the punishment regime for the persons serving life sentences has to be particularly strict, maximally limiting the sentenced persons’ communication rights both with prison staff and with other inmates, as well as their relatives, without providing the opportunity to engage in activities that would facilitate the resolution of problems, which led to commitment of offenses, their possible return into society and the ability to live a law-abiding life. These considerations might also be based on practical considerations: why should we invest resources into sentenced persons, who will probably never return into society (Shileikiste 2013).

The 1st paragraph of the Recommendation CM/Rec (2014) 3 of the Committee of Ministers to member States concerning dangerous offenders provides that a dangerous offender is a person who has been convicted of a very serious sexual or very serious violent crime against persons and who presents a high likelihood of reoffending with further very serious sexual or very serious violent crimes against persons, but the 3rd paragraph of these Recommendation provides that dangerous offenders, like all offenders, should be treated with respect for their human rights and fundamental freedoms, and with due regard for their particular situation and individual needs while at the same time protecting society effectively from them. Imprisonment itself, by isolating the offender from the outside world, causes him suffering with the fact that, depriving him of freedom, he is also deprived of the right to self-determination. For this reason, the prison system must not intensify these sufferings, unless segregation is justifiable, and if it is not required by discipline securing considerations (Kruminsh, Pokshans 1996).

According to the data provided by the administration of places of confinement, as of March 1, 2016, there are 57 persons sentenced with deprivation of liberty for life (life imprisonment) in places of confinement of Latvia serving custodial sentence, 56 of which are men and 1 woman. The persons sentenced with deprivation of liberty for life, men, (life imprisonment) are serving custodial sentence in Jelgava and Daugavgriva prisons, and women are serving custodial sentence in Ilguciems prison. A woman being in prison is an anomaly, but it is well known fact that the amount of female prisoners around the world is increasing (Zahars, Stivrenieks 2014). According to the data provided by the administration of places of confinement, out of the total number of the persons sentenced with deprivation of liberty for life (life imprisonment), 55 are the citizens of the Republic of Latvia, 1 is the citizen of the Russian Federation and 1 is the citizen of the Republic of Armenia.

In addition to the above, it is expedient to note the fact that there are also 8 imprisoned persons (men) in places of confinement of Latvia, who have been sentenced with deprivation of liberty for life (life imprisonment) by the judgment of the Court of First Instance. The imprisoned men, who have been sentenced with deprivation of liberty for life (life imprisonment), are placed in Investigation department of Jelgava prison, and imprisoned women are placed in Investigation department of Ilguciems prison. According to the statistics data provided by the administration of places of confinement, out of the total number of imprisoned persons, who have been sentenced with deprivation of liberty for life (life imprisonment) by the judgment of the Court of First Instance, 6 are the citizens of the Republic of Latvia, and 2 are the citizens of the Republic of Lithuania.
3. The requirements of regime of execution of sentence of imprisonment with respect to the persons sentenced with deprivation of liberty for life (life imprisonment)

The first part of Section 41 of The Sentence Execution Code of Latvia provides that basic provisions of the regime in deprivation of liberty institutions shall be: mandatory isolation and supervision of the convicted persons in order that they do not have an opportunity to commit new criminal offences; precise and unconditional fulfillment of the duties set out for them; and various conditions of the regime depending on the nature of the criminal offence committed by the convicted person, his or her personality and behavior, and the fourth part of this section provides that according to an order by the head of the institution, a strictly regulated daily schedule shall be determined in deprivation of liberty institutions. In practice, a special place occupies the regime, which is usually defined as punishment execution order stipulated by law and standard acts. Although the regime has to ensure both the rights of convicted persons and the order established within institutions, it is a deeply-rooted view that the punishment execution regime reflects restriction of rights of convicted persons that make up the contents of the punishment, and this has only repressive nature. This kind of view in practice has far-reaching negative consequences (Kruminsh, Pokshans 1996).

The persons sentenced to life imprisonment (life imprisonment), except women, according to the first part of the Section 50.8 of The Sentence Execution Code of Latvia, are placed in a separate closed prison block with enhanced surveillance, not allowing contact with convicted persons, who have not been sentenced to life imprisonment. Women who have been sentenced to life imprisonment (life imprisonment), serve the sentence of imprisonment in semi-closed prisons.

In addition to the above, the fourth part of the Section 50.8 of The Sentence Execution Code of Latvia provides that the rules of internal order of penitentiary institution determine custody and supervision order of the persons sentenced with deprivation of liberty for life (life imprisonment). The rules of internal order of penitentiary institutions are stipulated in Regulations No.423 “The Rules of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006.

The authors of the article by executing the analysis of legal provisions of Regulations No.423 “The Rules of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006, have found that these rules do not specify a particular custody and supervision order of the persons sentenced with deprivation of liberty for life (life imprisonment).

The first part of the Section 50.3 of The Sentence Execution Code of Latvia provides that the convicted persons in closed prisons shall serve their sentence at three regime levels – the lowest, medium and the highest level, but in partly-closed prisons – at two regime levels – the lowest and the highest. According to the fifth part of the Section 50.4 of The Sentence Execution Code of Latvia persons sentenced with deprivation of liberty for life (life imprisonment) shall commence serving their sentence at the lowest level. After imprisonment they must serve not less than seven years in this level. If a convicted person has served at least seven years of the adjudged sentence in a pre-trial arrest and a sentence execution place and complies with conditions, he or she may be transferred from the lowest to the medium level of the sentence serving regime according to a decision of the administrative committee of the deprivation of liberty institution. He or she shall serve not less than 10 years of the adjudged sentence at the medium level of the sentence serving regime and the remaining part – at the highest level of the sentence serving regime. A convicted person may be conditionally released prior to completion of his or her sentence term at the highest level of the sentence regime serving in accordance with the procedures laid down in the law. We have to take into consideration the fact that one day also the persons sentenced with deprivation of liberty for life will return to society from the places of confinement. This day is rapidly approaching (Spure 2015). In addition to the above, the standard acts provide also a number of preconditions, in order for conditional release to be proposed and enforced, prior to completion of punishment, and all these preconditions are stipulated in provisions of The Sentence Execution Code of Latvia and the Criminal Law norms.

The paragraph 4. of the third part of the Section 61 of the Criminal Law provides that persons sentenced with
deprivation of liberty for life (life imprisonment) may be released from imprisonment, if there is a reason to believe that he or she is able to adapt in the society without committing new criminal offences after being conditionally released prior to completion of his or her basic punishment, as well as if this person has already served twenty-five years of a punishment of deprivation of liberty, and according to the paragraph 4. of the third part of this section, the person sentenced with deprivation of liberty for life (life imprisonment) may be conditionally released prior to completion of his or her basic punishment by applying electronic monitoring, if this person has already served twenty-four years of a punishment of deprivation of liberty. In addition to the above, the president of the Republic of Latvia, in accordance with the third part of the Section 5 of the Clemency Law can grant pardon to the person sentenced with deprivation of liberty for life (life imprisonment), by replacing criminal punishment of deprivation of liberty for life (life imprisonment) by another lighter criminal punishment, if the person sentenced with deprivation of liberty for life (life imprisonment) has already served not less than twenty years of a punishment of deprivation of liberty.

Unambiguous is the fact that the requirements of regime of execution of sentence of imprisonment with respect to persons sentenced with deprivation of liberty for life (life imprisonment) are much stricter than with respect to other convicts. According to the tenth part of the Section 50.4 of The Sentence Execution Code of Latvia The right referred to wear personal clothing, to independently visit the prison medical clinic, shop, dining facility and library, and to participate in events outside the separate prison block shall not apply to convicted persons sentenced with deprivation of liberty for life (life imprisonment) who serve their sentence in a separate block of the deprivation of liberty institution with increased security. The security of places of confinement is viewed in its many manifestations (material, organizational, technical, technological, etc.), however we cannot ignore the fact that at the same time it must also be assessed from the aspect of human right and punishment execution rights (Zahars, Stivrenieks 2015).

The authors of the article believe that the amendments, as of July 14, 2015, to the eleventh part of the Section 50.4 have a very positive assessment, where in addition to other rights with respect to the persons sentenced with deprivation of liberty for life (life imprisonment), it is provided that the persons sentenced with deprivation of liberty for life (life imprisonment), who is serving a sentence in a separate closed prison block with enhanced surveillance, have the right to communicate with their relatives and with other persons via video call, without the presence of representative of the place of confinement. Such rights are not provided for the other convicts who are serving their sentences in closed and partially closed prisons. The opportunity to use a video call, as well as the limited possibility to use telephone and to meet with one’s relatives and other persons, during short or long visits, have gained great popularity among the prisoners; it also contributes to preservation and restoration of helpful kindred and familial connections. The life organization in prison has to be as close as possible to life in society. It should not be filled with destructive limitations, on the contrary, the prison administration should create opportunities for the involvement of the convicted persons in meaningful activities that neutralize the negative impact of the prison environment, reduce so-called “prison stress” and deformation of personality (Zahars 2015).

According to the thenth part of the Section 50.4 of The Sentence Execution Code of Latvia, the right to wear personal clothing does not apply to the persons sentenced with deprivation of liberty for life (life imprisonment). According to the paragraph 14. of Regulations No.423 “The Rules of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006, the convicts wear certain type of clothing with attached visiting card. The convict’s name, last name, year of birth, as well as the unit number are indicated on the visiting card. The model and type clothing for convicts are stipulated in the appendix 7. of the Regulations No.423 “The Rules of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006. In addition to the above, the appendix 7. of Regulations No.1022 “The Rules on Norms of Material Support of Household Needs of Imprisoned Persons” of the Cabinet of Ministers provides that the clothing and provision of footwear for one convict is determined in accordance with the appendix 4. of these regulations. After certain sanitation to convicts may be handed out used clothing and shoes.

The authors of the article, after conducting the analysis of the appendix 7. of Regulations No.423 “The Rules
of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006, and of the appendix 4. of Regulations No.1022 “The Rules on Norms of Material Support of Household Needs of Imprisoned Persons ”, have established that in both appendixes, the certain examples of convicts’ clothing, its types and range are different and contradictory. We also have to admit the fact that the practice of places of confinement, providing the persons sentenced with deprivation of liberty for life (life imprisonment) with a certain type of clothing, and demanding them to wear it, is not the same. Thus, the principle of prohibition of unequal attitude towards the persons sentenced with deprivation of liberty for life (life imprisonment) is allowed, which in some cases may even be discriminatory, when at the same legal conditions, only because a prisoner is in another place of confinement, there is provided unequal approach and attitude.

4. Safety aspects, when ensuring execution of the sentence of deprivation of liberty for life (life imprisonment) in places of confinement

Recommendation Rec (2006) 2 of the Committee of Ministers to member states on the European Prison Rules particularly stresses that every possible effort shall be made by prison administration to allow all prisoners to take a full part in daily activities in safety. Assurance of security and internal order process is one of the main principles in places of confinement. From the human rights point of view the assurance of regime and the personal security is the state’s responsibility, in order to ensure the protection of these persons in places of confinement. By limiting the freedom of movement of convicts and their self-defense ability, the state takes the increased responsibility in ensuring the safety and security in places of confinement. (Bishops 2013).

Recommendation Rec (2003) 23 of the Committee of Ministers to member states on the management by prison administrations of life sentence and other long-term prisoners stresses that, the enforcement of custodial sentences requires striking a balance between the objectives of ensuring security, good order and discipline in penal institutions, on the one hand, and providing prisoners with decent living conditions, active regimes and constructive preparations for release. Legislation and practice concerning the management of life sentence and other long-term prisoners should comply with the requirements embodied in the European Convention on Human Rights and the case-law of the organs entrusted with its application.

According to the second part of the Section 50.4 of The Sentence Execution Code of Latvia provides that increased security and maximum surveillance of convicted persons shall be ensured in closed prisons. In addition to the above, from the tenth and the eleventh part of the Section 50.4 of The Sentence Execution Code of Latvia it follows that enhanced surveillance is also ensured with regard to persons sentenced with deprivation of liberty for life (life imprisonment).

The authors of the article, after conducting the analysis of The Sentence Execution Code of Latvia, as well as of Regulations No.423 “The Rules of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006, have established that legal provisions do not define neither the concept of maximum surveillance nor the concept of enhanced surveillance, nor do they explain what is the difference between convict surveillance in partially closed prisons, and maximum surveillance or enhanced surveillance in closed prisons. In places of confinement, also in practice, the specific differences in the field of surveillance ensuring of convicted persons have not been found.

Looking back at the history of execution of sentence of imprisonment in Latvia, up until 2011, the sentenced men, who have been sentenced with deprivation of liberty for life (life imprisonment), on the internal prison territory were transferred escorted by at least three prison guards, handcuffed, and for transportation also were used service dogs. By the court judgment of certain authorities, the action of officials of these places of confinement has been found to be unlawful, it also did not derive from the norms of The Sentence Execution Code of Latvia, which were in force at that time, and this type of practice in places of confinement has been ceased. The authors of the article completely agree with the point of view expressed by the researcher I. Kronberga that...
security measures are divided into preventive and emergency operational actions. Preventive security actions are – provision of external prison security, organization of surveillance, as well as operational activities and measures in the territory of prison. Emergency operational actions are not planned in advance (it is a reaction to certain events), for example, search, detention, including attraction of special forces, the use of force techniques, special means and firearms. If preventive measures are well-designed and purposefully implemented, the number of emergency operational actions decreases to a minimum or is not needed at all (Kronberga 2013).

Based on the above, with amendments made to The Sentence Execution Code of Latvia on December 20, 2012, the Code has been supplemented with a new Section 50.8 - Application of Special Means to Persons Sentenced with Deprivation of Liberty for Life (Life Imprisonment) in the Territory of the Deprivation of Liberty Institution. The first part of the Section 50.8 of The Sentence Execution Code of Latvia provides that special means – handcuffs – may be applied to persons sentenced with deprivation of liberty for life (life imprisonment) when being transferred in the territory of the deprivation of liberty institution, if such persons may threaten the staff transferring them or if there is reasonable suspicion of a possible escape of the convicted person, and the second part of this Section provides that the dangerousness of each person sentenced with deprivation of liberty for life (life imprisonment) and the need for the application of special means – handcuffs – when being transferred in the territory of the deprivation of liberty institution, shall be assessed by a committee established by the head of the deprivation of liberty institution. The committee consists of responsible officials of the place of confinement and employees who are responsible for resocialization, surveillance, security and healthcare of the persons sentenced with deprivation of liberty for life (life imprisonment); as well as psychologist of the place of confinement who works with a certain person sentenced with deprivation of liberty for life (life imprisonment).

During the meeting of committee, also the opinion of the convicter person may be heard out (in person). Good internal order and the highest level of security in the place of confinement can be achieved, when the officials responsible for security, surveillance and resocialization cooperate with each other instead of competing or dominating each other, and share the information instead of hiding it (Zahars, Stivrenieks 2015).

In addition to the above, the paragraph 8. of the first part of the Section 22 of the Prisons Administration Law provides that the officials of the places of confinement are responsible for transfer of the persons sentenced with deprivation of liberty for life (life imprisonment) to the healthcare facility outside the place of confinement to receive healthcare services, and for provision of guarding of the convicted persons at the time of receiving of such services. The persons sentenced with deprivation of liberty for life (life imprisonment) are also escorted to receive healthcare services at the private or the state medical institutions, outside the place of confinement, if such healthcare services can not be provided in the certain place of confinement or in Olaine prison (Prison Hospital of Latvia).

After conducting the analysis of legal provisions of the Section 50.8 of The Sentence Execution Code of Latvia and of the Section 22 of the Prisons Administration Law, the authors of the article have come to the conclusion that even if the committee of the place of confinement desides to apply with respect to the person sentenced with deprivation of liberty for life (life imprisonment) the special means – handcuffs – when being transferred in the territory of the deprivation of liberty institution such a decision is not binding and legal in connection with the application of handcuffs with respect to the person sentenced with deprivation of liberty for life (life imprisonment) outside the places of confinement, or when providing healthcare services, or transferring the convict to the other place of confinement, for it does not follow from the name and wording of the Section 50.8 of The Sentence Execution Code of Latvia. In addition to the above, in practice, there is also a dispute regarding the issue whether, according to the Section 50.8 of The Sentence Execution Code of Latvia, the decision made by committee of one place of confinement regarding the application/non-application of handcuffs with respect to the person sentenced with deprivation of liberty for life (life imprisonment), is binding to the head of the other place of confinement.

Security greatly depends on alertness of the staff and its cooperation with the convicts, when the staff is aware of the prison events and the convicts are involved in positive activities. This model is often referred to as the dynamic safety. By preserving permanent contact with the prisoners the observant guard will be able to respond
to situation which is different from the acceptable, and which may become a threat to prison security. The positive aspect of the dynamic security is that it allows to identify the security risk at an early stage (Koil 2002).

5. Resocialization peculiarities of the persons sentenced with deprivation of liberty for life (life imprisonment)

The first part of the Section 61.1 of The Sentence Execution Code of Latvia provides that the process of resocialization of convicted persons sentenced with deprivation of liberty is an aggregate of social behaviour correction and social rehabilitation measures aimed at promoting lawful behaviour of the convicted person and forming his or her understanding of socially positive values, and the fourth part of this Section provides that the participation of convicted persons in resocialization shall be stimulated and positively assessed in accordance with the procedures laid down in this Code. According to the first part of the Section 61.5 of The Sentence Execution Code of Latvia, within two months after placing a convicted person in a deprivation of liberty institution in order to commence the serving of the sentence the head of the institution shall ensure an assessment of the risks and needs of the convicted person, determining:
1) the resocialization needs of the convicted person, the degree of risk of anti-social behaviour and committing a repeated criminal offence in the deprivation of liberty institution;
2) the most appropriate social behaviour correction or social rehabilitation measures and other measures to be implemented during execution of the sentence and to be included in the resocialization plan of the convicted person.

The repeated assessment of the risks and needs of the convicted person is carried out at least once a year during the whole sentence period. The resocialization plan of the convicted person is also specified and supplemented according to the risk and needs assessment results.

The third part of the Section 61.3 of The Sentence Execution Code of Latvia provides that the Cabinet shall lay down the procedures for the implementation of resocialization of convicted persons, and the fourth part of this Section provides that resocialization of convicted persons shall be organised by the head of the deprivation of liberty institution, and all the staff of the deprivation of liberty institution and representatives of other institutions determined in the laws and regulations shall participate in the implementation thereof. It is worth to remind about the basic truth that only staffed in accordance with the highest requirements and professionally trained prison staff can transform consciousness and behavior of the offender. The staff is also a good key resource of prison management. Namely, the investment to the prison staff can bring greater benefits then multi-million investment into prison walls, bars and technology (Zahars 2015).

The order of implementation of resocialization process of convicts is stipulated by the Regulations No. 191 “The Procedure for the Implementation of Resocialization of Convicted Persons” of the Cabinet of Ministers as of April 9, 2013.

According to the first part of the Secion 61.6 of The Sentence Execution Code of Latvia, the resocialization plan of a convicted person shall provide for the course of resocialization of the convicted person and reflect the results of resocialization of the convicted person. The resocialization plan shall be formed as a section in the personal file of the convicted person.

The Section 61.7 of The Sentence Execution Code of Latvia provides peculiarities of resocialization of persons sentenced with deprivation of liberty for life (life imprisonment). The first part of this Section provides that joint resocialization measures may be organised for persons sentenced with deprivation of liberty for life (life imprisonment) within the scope of one level of the sentence serving regime or, after assessing security considerations – together with persons sentenced with deprivation of liberty for life (life imprisonment) serving their sentence in other levels of the sentence serving regime, and the second part of this Section provides that joint resocialization measures shall be organised for women sentenced with deprivation of liberty for life (life imprisonment) and other convicted women serving their sentence in the relevant level of the sentence serving regime.
In addition to the above, the authors also point out that the tenth part of the Section 50.4 of The Sentence Execution Code of Latvia, among other, provides that the right mentioned in this section to participate in activities outside the particular prison block do not apply to the persons sentenced with deprivation of liberty for life (life imprisonment), who are serving their sentence in separate, closed prison blocks with enhanced surveillance, as well as the first part of the Section 50.8 of The Sentence Execution Code of Latvia provides that the persons sentenced with deprivation of liberty for life (life imprisonment), except women, are placed in a separate closed prison block with enhanced surveillance, not allowing contact with convicted persons, who have not been sentenced to life imprisonment. Historically, in Latvia, in execution of sentence of imprisonment greater emphasis has been placed on isolation of convicted persons and severity of regime rather than provision of the content of punishment – resocialization. Therefore, there has not been developed a systematic approach regarding the issue of resocialization of convicted persons in general, because the basic concepts of deprivation of liberty in existing standard acts are either not mentioned at all, or are mentioned without revealing their content. Instead of this, the standard acts about the leading-motive of the execution of sentence of imprisonment still propose out-of-date, impracticable objectives, but do not talk about their achieving mechanism and measures to be taken (Teivāns–Treinovskis 2009).

The authors of the article by conducting the analysis of provisions of the tenth part of the Section 50.4, the first part of the Section 50.8 and the first part of the 61.7 of The Sentence Execution Code of Latvia, have established that due to strict requirements of the regime of execution of sentence of imprisonment, the possibility of implementation of resocialization in places of confinement in relation to the persons sentenced with deprivation of liberty for life (life imprisonment) are rather limited, if not impossible. In addition to the above, the authors of the article point out the fact that the above-mentioned sections of The Sentence Execution Code of Latvia contradict one another, and there are apparent conflicting characteristics between the the regime of execution of sentence of imprisonment and resocialization of the convicted persons; as a result it is necessary to make amendment in the relevant sections of The Sentence Execution Code of Latvia.

The significant changes in the execution of sentence of imprisonment in respect of the persons sentenced with deprivation of liberty for life (life imprisonment) have been achieved with amendments (as of June 18, 2016) made to the Section 50.8 of The Sentence Execution Code of Latvia. The fifth part of the Section 50.8 of The Sentence Execution Code of Latvia provides that the committee established by the head of the deprivation of liberty institution shall assess the issue not only regarding application/non-application of special means – handcuffs – to persons sentenced with deprivation of liberty for life (life imprisonment) in place of confinement, but committee is entitled to decide also the issue of transfer or relocation of the person sentenced with deprivation of liberty for life (life imprisonment) to the premises, where in closed prison are serving their sentence the convicted persons who have not been sentenced with deprivation of liberty for life.

As of March 1, 2016, from the total number of the persons sentenced with deprivation of liberty for life (life imprisonment), there have been transferred 4 convicts to the other convicted persons, who have not been sentenced with deprivation of liberty for life (life imprisonment), and who have been sufficiently well integrated into society of other convicts, and who (to some extent) have already reached certain results of resocialization. The above-mentioned convicted persons are employed in enterprises, at the territory of institutions of deprivation of liberty, as well as actively participate both in leisure and religious events, they also attend resocialization programs of various content.

Unfortunately, not all resocialization necessary resources and tools may be applied in isolation conditions. Although within the prison walls the offender’s willingness to live in a society can be judged only on hypothetical level, prison potential is high enough to give the client a good support before the main test – freedom (Luste 2015).
Conclusions

In summary, the authors come to the following conclusions:

Regulations No.423 “The Rules of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006, according to requirements of the fourth part of the Section 50.8 of The Sentence Execution Code of Latvia do not specify a particular custody and supervision order of the persons sentenced with deprivation of liberty for life (life imprisonment);

Amendments, as of July 14, 2015, to the eleventh part of the Section 50.4 have a very positive assessment, which provides that the persons sentenced with deprivation of liberty for life (life imprisonment) have the right to communicate with their relatives and with other persons via video call, without the presence of representative of the place of confinement;

The examples of convicts’ clothing, its types and range that is determined in the appendix 7. of Regulations No.423 “The Rules of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006, and in the appendix 4. of Regulations No.1022 “The Rules on Norms of Material Support of Household Needs of Imprisoned Persons” of the Cabinet of Ministers, are different and contradictory;

It is possible to see the signs of different treatment prohibiting principle in action of places of confinement, by failing to ensure uniform practice, handing out the convicted persons cloasing and demanding them to wear it, when at the same legal conditions there is provided unequal approach and attitude, only because a prisoner is in another place of confinement;

Neither legal provisions of The Sentence Execution Code of Latvia nor Regulations No.423 “The Rules of Internal Order of Penitentiary Institutions” of the Cabinet of Ministers as of May 30, 2006, define the concepts of maximum surveillance and enhanced surveillance;

According to decision adopted in the order of the Section 50.8 of The Sentence Execution Code of Latvia, the officials of the places of confinement do not have the right to apply special means – handcuffs – in regard the persons sentenced with deprivation of liberty for life (life imprisonment) outside the place of execution of punishment of deprivation of liberty;

In practice of places of confinement there is also a dispute regarding the issue whether, according to the Section 50.8 of The Sentence Execution Code of Latvia, the decision made by committee of one place of confinement regarding the application/non-application of handcuffs with respect to the person sentenced with deprivation of liberty for life (life imprisonment) is binding to the head of other place of confinement;

According to the tenth part of the Section 50.4, the first part of the Section 50.8 and the first part of the Section 61.7 of The Sentence Execution Code of Latvia, the possibility of implementation of resocialization in places of confinement in relation to the persons sentenced with deprivation of liberty for life (life imprisonment) are rather limited, if not impossible. In addition to the above, the above-mentioned sections contradict one another, and there are apparent conflicting characteristics between the regimes of execution of sentence of imprisonment and resocialization of the convicted persons kļajā pretrunā;

Amendments, as of June 18, 2015, to the fifth part of the Section 50.8 of The Sentence Execution Code of Latvia have a very positive assessment, based on which, the persons sentenced with deprivation of liberty for life (life imprisonment) can be transferred to the total “flow,” to the other convicts, who have not been sentenced with deprivation of liberty for life (life imprisonment).

References


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CONSUMER APPROACH TO BANK PAYMENT CARD SECURITY AND FRAUD

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Abstract. Due to the rise and rapid growth in e-commerce in recent years, the use of payment cards for online purchases has dramatically increased the credit and debit cards market. This situation has led to an explosion in payment card fraud and it is causing billions of euros and dollars in losses in the card payment industry.

In addition to direct losses, the brand may be affected by fraud-induced decrease in consumer confidence. It is therefore important to know the opinion and consumer approach to security and payment card fraud. As a result of rising losses, financial institutions and card issuers are constantly searching for new technologies and innovations in payment card fraud detection and prevention.

This article provides several views on personal safety and quality of security that banks devote to payment cards and payment systems and the related research was carried out in an electronic form by means of selective examination in Slovakia in 2015. The study group consisted of 287 respondents, of whom 164 were men and 123 were women. The respondents were categorised by their age, education and job.

The study results can help the issuers of payment cards and banks as well as clients using payment cards, especially in order to increase the prevention of misusage of payment cards and fraud.

Keywords: commercial banks, security, customer satisfaction, bank payment cards, payment card fraud


JEL Classifications: G21

1. Introduction

The transaction with payment cards may take place within minutes, but the side effects of fraud over phone lines or involves electronic communication is able to continue to exist for months, sometimes years in the form of long and costly legal proceedings.
When electronic fraud strikes, the losses are usually distinguished, while the client’s reaction ranges from strong anger to distrust toward the bank which “has allowed” the fraud to happen. Trustworthiness is the essential determinant of efficient and stable banking.

Today, the sustainable and secure development has become an actual and urgent matter in many countries around the world (Štitilis, Klišauskas 2015; Kriviņš 2015; Munteanu, Tamošiūnienė 2015; Rakauskienė 2014; Vasiliiūnaitė 2014; Baikovs, Zariņš 2014; Caurkubule; Rubanovskis 2014; Demir et al. 2014; Mačiulis, Tvaronavičienė 2013; Prakash 2013).

Personal economic and financial security can be mostly viewed as a matter of personal decision and common sense (Kalyugina et al. 2015; Njaramba et al. 2015). Currently, it is the phenomenon of globalization and diversification, which is becoming dominant, and that to such extent that the majority of economic subjects take action in accordance with what is called “rational inattention” (see Sims 2006). At the same time, personal debt and economic freedom have become the key elements of every society (Rakauskienė 2014; Starineca, Voronchuk 2015; Šileika, Bekerytė 2013; Vasiliiūnaitė 2014, Prakash 2013; Tvaronavičienė, Grybaičė 2012; Dubauskas 2011, 2012; Radović Marković 2011).

It is created because this sector transports scarce financial capital for its optimal utilisation. Thus it exists only if there is a sufficient number of economic subjects willing to deposit their surpluses in banks along with a sufficient number of subjects relying on banks in case of money deficit. In that context it could be declared that a bank trades mainly with trust of their clients.

Security is connected to a large number of bank activities and is a significant issue in commercial bank management. Ensuring the security of banking is determined by various factors. Commercial bank security is a complex system including many activities, e.g. capital management in the context of credit, market and operational risks (i.e. capital adequacy management), etc. The security process is focused on operational risk defined as a risk of loss resulting from internal processes or human capital failure or from external conditions (Grubicka, Matuska 2015; Peker et al. 2014; Polouček et al., 2013).

Physical security is connected to the protection of cash in bank branches and ATMs. The system security includes all internal and external processes carried out by informational system. In this context, the security of individual customers’ deposits and their payments is crucial. The security of customers’ is the key factor of success for banks. The mentioned factor heavily influences acquisition, retention or loss of customers. For that reason, it is decisive for a commercial bank to undertake such measures to ensure a proper and efficient protection of customers.

The present situation demands from the commercial banks to pay extraordinary attention to payment cards security. The compliance with consumers’ needs and requirements (Bilan, 2013), bank customers’ satisfaction and comprehensive customer care are nowadays in the centre of attention of researchers and bankers. It is for this reason that it represents an important marketing instrument for many companies, notably those working at highly competitive markets. (Belás and Demjan, 2014) Researchers are trying to find the main determinants for bank customer satisfaction and examine these issues from various perspectives (Doležal et al., 2015; Combo, 2015; Belás et al., 2015; Chochořáková et al., 2015; Paulík et al., 2015).

2. Theoretical Background

Credit card fraud continues to be a significant and dynamic risk to financial institutions as a result of both new threats and the increasing regulatory interest in fraud management programs. Emerging fraud threats and solutions required to mitigate them are increasingly technically complex. To secure and maintain customers’ trust, the financial institutions must prevent, detect and respond to fraud risk in an agile manner through fraud management technologies and predictive analytics. While the new US mandate of Europay, MasterCard and Visa (chip and PIN) technology will help decrease the risk of counterfeit transactions, financial institutions must
remain vigilant, as fraudsters will certainly be crafting new modes of attack.

When high rates are absent in economic growth, the most obvious signs of the critical state of the economic security appear and they have an impact on the country as a whole and its citizens, in particular. This phenomenon is described by many authors (see e.g. Hendley and Murrell 2015; Tsyganov et al. 2014; Bilan et al. 2012; or Mikhalev 1996). Very similar trends can be recognised in other transition economies, e.g. in countries of the former Soviet block (see e.g. Zhuk 2015; Crhova et al.2015; Tvaronavičienė et al. 2014; Clowes and Bilan 2014).

The expansion of payment cards has significantly changed the manner we shop and businessmen sell goods and services. Currently, payment cards are vital in most advanced economies. Amromin and Chakravorti (2009) suggest that extensive usage of debit cards has caused lower demand for small-denomination banknotes and coins. This process was seen in thirteen advanced economies. Payment surveys done recently also indicate that consumers are using payment cards instead of checks. Aside from making money transaction more comfortable, Juřík (2012) argues that the cards have been also used to increase the loyalty of customers.

Extensive usage and acceptance of payment cards leads to a growing number of consumers and at the same time merchants start to prefer payment cards to cash and checks.

In general, all payment tools possess special aspects such as cost, transaction speed, restraint, security, convenience, records keeping and acceptance (Schuh and Stavins, 2011; Ching and Hayashi, 2006; Borzekowski et al., 2006).

Schuh and Stavins (2011) define security as “security against permanent financial loss or wanted disclosure of personal information when a payment method has been stolen, misused, or accessed without the owner’s permission”. According to the research by Zinman (2008), the improved security was a significant proximate of recent growth of debit card users. The customers tend to choose transactions which are secure because in their eyes the security is of crucial importance.

A lot of cardholders prefer holding bank cards as a preventive measure against loss, robbery, theft, or counterfeit money. As opposed to the latter approach, there are others who are still fond of using cash instead of cards, as they are afraid of becoming exposed to the risks of fraudulent activities when the cards are lost or stolen. Most of the clients feel secure because they are always protected by liability agreements with card issuers and merchants when these problems occur. The concern of security was highlighted in the research by Schuh and Stavins (2011) who presented their conclusion that people considering the payment method relatively more secure are more likely to adopt it and vice versa. Security is definitely important and necessary when it comes to understanding the consumer behaviour for using payment bank cards.

The unique explosion of Information and Communication Technologies (ICT) over the past few years has led to a body of innovations in the banking sector, while electronic banking and the use of payment cards are probably the most significant ones. This new distributional channel offers various opportunities in the field of new financial products development and their distribution to clients through the internet. The launching of new internet distribution channels gives wide space for extreme misusage, frauds, loss, and theft. It is a large challenge for the banks and card issuers to keep increasing the level of security for their clients and themselves. Implementation of advanced technology, widening of distributional channels and high flexibility bring about valuable effects on the quality of bank products and consequently on satisfaction of customer needs. (Sysáková and Šlahor, 2010)

Polouček et al. (2013) state that electronic banking can be defined as the provision of bank products and services to customers via electronic channels. Since the internet environment is more sensitive to system attacks, the utilisation of these channels has underlined the essential role of bank security (Koskosas, 2011; Dhillon and Torkzadeh, 2006). Koskosas (2011) claims that customers can find huge advantage in electronic banking
due to its simplicity and reduction of transaction costs, however it is necessary to respect the financial security.

Customers using internet banking have a non-stop access to their accounts, they can make payments whenever and wherever they are willing to, display the bank statement to a transaction, pay out their debts and carry out many more bank transactions electronically via webpages of their bank. (Belás at al.2016; Yoon and Occeña, 2014; Yoon and a Steege, 2013).

The use of electronic banking is tightly associated with the customers’ perception of his security which has an impact on his behaviour and attitudes (Grabner-Krauter and Faullant, 2008). The recognised absence of security is defined as a potential loss caused by fraud or internet banking hacking (Lee, 2009; Featherman and Pavlou, 2003). In this context, the security and privacy are considered to be two fundamental determinants of customer trust in electronic banking (Flavián and Guinaliu, 2006; Kruck, Gottoví, Moghadami, Broom, and Forcht, 2002).

IBCS model (Internet Banking Customer Satisfaction) created by Chen, Hsiao and Hwang (2012) is comprised of six essential parts: content, accuracy, format, simplicity of use, timeliness and security. This model emphasised that clients are highly sensitive to internet security. In order to meet the customer’s expectations, the internet transaction needs to be carried out by using a user-friendly interface which has to be secure.

Security attributes of electronic banking and payment cards were examined by Hoffmann and Birnbrich (2012). Belás at al. (2016) argue “their research was focused on describing the conceptual and empirical relations among bank activities in the field of protection against third party attacks, customer relationship management quality and customer loyalty. The authors declare that security is crucial and is getting even more important in the current banking sector. The fraud prevention has become one of the priorities of banks, customers and even politicians as bank frauds harm both banks and customers. The results showed there is a positive relation between trustworthiness of a bank, its skills in the field of fraud prevention and customer relationship management quality. After all, customer relationship management quality has a positive influence on customer loyalty. There is a difference between younger and older customers in their knowledge about security measures of banks focused on fraud prevention. At the same time, the positive impact of this awareness on the customer relations quality is less significant in the group of older clients. The possible reason could be in a higher level of scepticism of older clients regarding the efficiency of the above-mentioned measures. Fraud prevention is vital in customer relationship management quality for all customers regardless of their education and income levels”.

4. Research objective, methodology and data

The research was carried out in an electronic form by means of selective examination in Slovakia in 2015. The selective detection is a form of detection that requires necessary data to be obtained only from a part of units of the basic group, i.e. units which have been selected from the basic group in a particular manner. The estimations derived from results obtained by selective examination are loaded with selection error and thus cannot be as precise as results obtained by comprehensive detection. At the same time, the selective detection does not provide reliable data for signs that are present only sporadically in the studied units. However, selective detection, when compared to comprehensive detection, saves time, work and costs. It also enables the detection to be carried out in a more thorough manner. This is because the smaller extent of the detected group allows greater contents and more pieces of information can be obtained in greater detail. The comprehensive detection cannot be carried out when it leads to destruction, i.e. when as a result of statistical observation, the detected group becomes depreciated.

The study group consisted of 287 respondents, of whom 164 (57.14%) were men and 123 (42.6%) were women. The respondents were categorised by their age, education and job. Regarding age, the study group consisted of 113 (39.37%) respondents younger than 40 years (-40) and 174 (68.63%) respondents older than 40 years (+40). As to education, the study group consisted of 152 (52.64%) university graduates, 120 (41.1%) respondents with secondary education and 15 (5.22%) respondents with elementary education. The category of
job divided the respondents into students (64; 22.9%), unemployed (64; 22.9%), civil servants (59; 20.56%), nongovernmental employees (64; 22.29%) and pensioners (36; 12.54%). The graphic image of respondents per category is shown in Figures 1 and 2.

Research hypotheses:
Hypothesis 1: A significantly greater proportion of university graduates, men and women younger than 40 years of age carry their PIN together with their payment card. The hypothesis has been proven right.

Hypothesis 2: A significantly greater proportion of men and women with secondary education older than 40 years of age carry their PIN together with their payment card. The hypothesis has been proven wrong.

Hypothesis 3: A significantly greater proportion of university graduates, men and women older than 40 years of age have changed their payment card PIN. The hypothesis has been proven right.

Hypothesis 4: A significantly greater proportion of men and women with secondary education and younger than 40 years of age have changed their payment card PIN. The hypothesis has been proven right.

Hypothesis 5: A significantly greater proportion of university graduates, men and women younger than 40 years of age usually choose their date of birth as their payment card PIN for the sake of easy recollection. The hypothesis has been proven right with no difference between men and women in either of studied categories.

Hypothesis 6: A significantly greater proportion of university graduates, men and women younger than 40 years of age have never encountered a hacker attack or banking fraud. The hypothesis has been proven right.

Hypothesis 7: A significantly greater proportion of respondents with secondary education, men and women older than 40 years of age have never encountered a hacker attack or banking fraud. The hypothesis has been proven right.

Calculations and graphical results of research

The above-mentioned hypotheses were validated by Pearson Chi-square test. The significance level (α) was estimated at 0.05. Further, graphs of frequency interactions and histograms of responses to questions were used.
Customers’ evaluation of the personal security measures from the point of view of selected social groups

Figure 1: Graph of frequency interactions in subgroup of women

Figure 2: Graph of frequency interactions in subgroup of men

Histogram of responses to Question 1 as to whether the respondents carry their PIN together with their payment cards (per category, i.e. gender, age and education) is shown in Figure 3 for the subgroup of men and in Figure 4 for the subgroup of women. The table layout of histogram is shown in Table 1.
Figure 3: Histogram of responses to Question 1 per category of respondents in subgroup of men

Figure 4: Histogram of responses to Question 1 per category of respondents in subgroup of women
Table 1: Frequency table of responses to Question 1 per category of respondents  
(Question 1: Do you carry your PIN together with your payment card?)

<table>
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<th>Sex</th>
<th>Age</th>
<th>Education</th>
<th>ques.1 no</th>
<th>ques.1 yes</th>
<th>RowTotals</th>
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<td>23</td>
<td>10</td>
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<td>20</td>
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<td>0</td>
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<td>1</td>
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</tr>
<tr>
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<td>5</td>
<td>11</td>
</tr>
<tr>
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</tr>
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</tr>
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<td>15</td>
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<td>basic</td>
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<td>0</td>
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<tr>
<td>Total</td>
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</table>

Analysis of Hypothesis 1

Based on the analysis of histogram of responses to Question 1 per category of respondents shown in Figures 3 and 4 and Table 1 by means of Pearson Chi-square test in frequency distribution table $\chi^2 = 3.945$ (p = 0.047), it can be stated that in the group of university graduates younger than 40 years of age there is a significant difference between responses of men and women (selected level of significance of $\alpha = 0.05$) to the question as to whether they carry their PIN together with their payment card. Hence, we do not have sufficient evidence for refuting the Hypothesis 1 provided by us and therefore we accept it on the level of significance of $\alpha = 0.05$. This result can be rationalised by the fact that male university graduates younger than 40 years of age when compared to women of the same category carry their PIN together with their payment cards less often due to higher awareness of safety and protection of payment systems, payment cards included.

Analysis of Hypothesis 2

Based on the analysis of histogram of responses to Question 1 per category of respondents shown in Figures 3 and 4 and Table 1 by means of Pearson Chi-square test in frequency distribution table $\chi^2 = 3.729$ (p = 0.053), it can be stated that in the group of respondents with secondary education older than 40 years of age there is no significant difference between responses of men and women (selected level of significance of $\alpha = 0.05$) to the question as to whether they carry their PIN together with their payment card. Hence, we have sufficient evidence for refuting the Hypothesis 2 provided by us and therefore we refute it on the level of significance of $\alpha = 0.05$. This result can be rationalised by the fact that men and women with secondary education older than 40 years of age are insufficiently aware of security risks associated with payment.

Customers’ evaluation of the changes personal security measures from the point of view of selected social groups

Histogram of responses to Question 2 as to whether the respondents (per gender, age and education) have changed their payment card PIN is shown in Figure 5 for the subgroup of men and in Figure 6 for the subgroup of women. The table layout is shown in Table 2.
Figure 5: Histogram of responses to Question 2 per category of male respondents

Figure 6: Histogram of responses to Question 2 per category of female respondents
Table 2: Frequency table with responses to Question 2 per studied category of respondents
(Question 2: Have you ever changed your payment card PIN?)

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<td>basic</td>
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<td>basic</td>
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Analysis of Hypothesis 3

Based on the analysis of histogram of responses to Question 2 per category of respondents shown in Figures 5 and 6 and Table 2 by means of Pearson Chi-square test in frequency distribution table \( \chi^2 = 4.482 \) (\( p = 0.034 \)), it can be stated that in the group of university graduates, men and women older than 40 years of age there is a significant difference between responses of men and women (selected level of significance of \( \alpha = 0.05 \)) to the question as to whether they have changed their PIN. Hence, we do not have sufficient evidence for refuting the Hypothesis 3 provided by us and therefore we accept it on the level of significance of \( \alpha = 0.05 \). This result can be rationalised by the fact that male university graduates older than 40 years of age when compared to women of the same age and education category are more aware (by 49.3%) of payment systems security including the payment cards.

Analysis of Hypothesis 4

Based on the analysis of histogram of responses to Question 2 per category of respondents shown in Figures 5 and 6 and Table 2 by means of Pearson Chi-square test in frequency distribution table \( \chi^2 = 4.652 \) (\( p = 0.031 \)), it can be stated that in the group of men and women with secondary education younger than 40 years of age there is a significant difference between responses of men and women (selected level of significance of \( \alpha = 0.05 \)) to the question as to whether they have changed their PIN. Hence, we do not have sufficient evidence for refuting the Hypothesis 4 provided by us and therefore we accept it on the level of significance of \( \alpha = 0.05 \). Similarly to Hypothesis 3, this result can be rationalised by the fact that men with secondary education younger than 40 years of age when compared to women of the same age and education category are more aware (by 49.4%) of payment systems security including the payment cards.

Customers’ evaluation of the changes PIN from the point of view of selected social groups

Histogram of responses to Question 3 as to whether the respondents (per gender, age and education) have chosen their date of birth as their payment card PIN is shown in Figures 7 for the subgroup of men and in Figure 8 for the subgroup of women. The table layout is shown in Table 3.
Figure 7: Histogram of responses to Question 3 per category of respondents in the subgroup of men

Figure 8: Histogram of responses to Question 3 per category of respondents in the subgroup of women
Table 3: Frequency table with responses to Question 3 per studied category of respondents
(Question 3: Do you usually choose your date of birth as your payment card PIN for the sake of easy recollection?)

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</table>

Analysis of Hypothesis 5

Based on the analysis of histogram of responses to Question 3 per category of respondents shown in Figures 7 and 8 and Table 3 by means of Pearson Chi-square test in frequency distribution table $\chi^2 = 0.589$ ($p = 0.443$), it can be stated that in the group of university graduates younger than 40 years of age there is no significant difference between responses of men and women (selected level of significance of $\alpha = 0.05$) to the question as to whether they use their date of birth as their payment card PIN. Hence, we have sufficient evidence for refuting the Hypothesis 5 provided by us and therefore we refute it on the level of significance of $\alpha = 0.05$. The reason why male and female university graduates younger than 40 years of age react almost same manner is that...
they either prefer other combinations of numbers or do not change their PIN for other reasons.

Levels of customers’ experience with hacking attacks according to selected social groups

Figure 9: Histogram of responses to Question 9 per category of respondents in the subgroup of men

Figure 10: Histogram of responses to Question 9 per category of respondents in the subgroup of women
Table 4: Frequency table with responses to Question 9 per studied category of respondents (Question 9: Have you ever encountered a hacker attack or banking fraud?)

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</table>

Analysis of Hypothesis 6

Based on the analysis of histogram of responses to Question 9 per category of respondents shown in Figures 9 and 10 and Table 4 by means of Pearson Chi-square test in frequency distribution table $\chi^2 = 3.945$ ($p = 0.047$), it can be stated that in the group of university graduates younger than 40 years of age there is significant difference between responses of men and women (selected level of significance of $\alpha = 0.05$) to the question as to whether they have encountered hacker attack or banking fraud. Hence, we have no sufficient evidence for refuting the Hypothesis 6 provided by us and therefore we accept it on the level of significance of $\alpha = 0.05$. This result can be rationalised by lower alertness to compliance with internet payment safety rules in the subgroup of female university graduates younger than 40 years of age when compared to male respondents of the same category.

Analysis of Hypothesis 7

Based on the analysis of histogram of responses to Question 9 per category of respondents shown in Figures 9 and 10 and Table 4 by means of Pearson Chi-square test in frequency distribution table $\chi^2 = 6.000$ ($p = 0.014$), it can be stated that in the group of respondents with secondary education older than 40 years of age there is a significant difference between responses of men and women (selected level of significance of $\alpha = 0.05$) to the question as to whether they have encountered a hacker attack or banking fraud. Hence, we have no sufficient evidence for refuting the Hypothesis 7 provided by us and therefore we accept it on the level of significance of $\alpha = 0.05$. This significant difference (50%) can be rationalised by the fact that at the extent and frequency of payments of men with secondary education older than 40 years of age they do not pay sufficient attention to protection and safety of internet payment.

Conclusions

Criminal activity associated with abusing the banking payment cards is variable. It is conditioned foremostly by technical advancement of culprits, inattention from the side of payment card holders of payment cards and technologic progress of society. Financial losses caused by misusing the banking payment cards are very high world-wide. Therefore, all preventative organisational and technical measures focused against this form of criminal acts are important. Professionals though cannot exclude the possibility of new, up-to-now not known forms of criminal acts in association with payment cards.
Compared to any other time in its history, the payment card industry faces an increasing variety of security challenges as the transaction environment grows in size and complexity. With more stakeholders, payment channels, and people driving the use of payment cards, the need to enhance the integrity of an increasingly dynamic system while ensuring global acceptance is more important than ever.

On a global level, fraud continues to migrate from more secure to less secure regions and channels. This obvious shift is accelerated by an increasingly adept and organized criminal community that seeks to exploit security vulnerabilities and commit fraud. Criminals are targeting not just unmonitored, stand-alone, point-of-interaction devices, but also launching sophisticated attacks on the private networks of well-known entities, such as major data processors and top-tier merchants. All of these factors can lead to fraud attacks that can cause an erosion in confidence and global acceptance as financial institutions seeking to avoid risk may move to block transactions at a country or regional level.

Since, one of the biggest concerns relating to security in e-commerce applications is the use of the credit/debit cards; the failure to secure the card information can cause a major damage to the organization in terms of financial fraud, identity theft, legal regulations, loss of consumer confidence, etc.

Our own research has shown that in case of Hypotheses 3 and 4 as to the Question 2, i.e. whether the respondents have ever changed their payment card PIN, all men irregardless of age and education responded almost with identical results. The difference in the responses associated with both hypotheses in men and women exceeds 49% in favour of men.

The aspects of payment card protection against counterfeit and misusage begins already with card issuers. The production of payment cards requires safety conditions identical to those of banknote printing.

It is an obligation of every client to protect his/her payment card against theft and consequent misusage. Also the banks themselves make effort to protect their clients from illegal misusage by other person. Every bank has therefore on their websites instructions on how to use payment cards safely.

These instructions could protect the client sufficiently against theft and misusage of payment card. The extent alertness with which the client handles the payment card has to be similar to that required when handling cash. Payment card holders often do not follow the instruction relating to PIN code safe-keeping.

Many clients are afraid of forgetting the PIN code and consequently make an error of writing it down on a piece of paper and carry it together with their payment card. In this way the clients expose themselves to misusage of their payment cards.

The results of research and performed analyses clearly document the limitations of payment card users in association with their protection and safety. The protective measures from the side of payment card issuers and banks are not sufficient because it is the personal attitude towards the level of safety and protection of data associated with the usage of payment cards that is the most important factor.

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References


ECONOMIC SUSTAINABILITY AS A FUTURE PHENOMENON:
MOVING TOWARDS A SUSTAINABLE HOTEL INDUSTRY

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Abstract: The issue of sustainability is frequently discussed in relation to the tourism industry. This is as a consequence of the rapidly increasing demands of tourists and the fact that tourism is perceived as one of the driving forces behind economic growth in some destinations. This can lead to both positive and negative future impacts. The emergence and growing economic impact of tourism means that it is essential to devote research into the implementation of sustainability issues and measurement indicators with regards to future economic prosperity. Historically, one of the first needs of a tourist was the need for shelter against the elements. Nowadays, the understanding of what accommodation is has been extended to include comfort and relaxation. The pressure on the accommodation sector to apply sustainability measures in practice in order to adapt to changing demands and to protect its economic prosperity, is enormous. The aim of this study is to determine the relationship between the main economic sustainability indicators, gross domestic product, and the internal consumption of tourists in accommodation facilities. The hypothesis that a mutual relationship exists in the Czech Republic between gross domestic and the contribution of domestic and inbound tourism expenditure on accommodation, is tested through a correlation analysis. The results of this analysis were used to determine how urgent the need is to implement sustainability measures within the Czech accommodation sector and within the hotel industry.

Key words: accommodation, Czech Republic, economic sustainability, environmental sustainability, Gross Domestic Product, hotel industry, tourism


JEL Classification: L83, Q01

1. Introduction

From an historical perspective tourism began in the 13th century with merchants and pilgrims, it has since grown to become a global phenomenon. Whilst travelling, the need for food and shelter was immediately apparent. In those times, accommodation only took the form of simple shelters and inns (Křížek and Neufus, 2014). It was only in the 19th century that the first type of hotel as we know it today opened its doors and started offering quality services. The expansion of tourism brought with it the need for facilities and amenities that would make travelling more pleasant and easier. Lockyer gives historical examples of what some of the crucial changes in the hotel industry have been, including keyless locks (1970s), colour television (1970s), in-room guest checkout (1980s), internet reservations (1990s) or guest room shopping (1990s) (Lockyer, 2007). Today, all of the aforementioned services are considered to be valuable and essential key elements for ensuring the success of the hotel industry. In recent times, information technology, and in particular the advent of the internet, has
resulted in an enormous increase in the range of accommodation available and bookings (Rheams, n.d.). However, in order to operate over the long-term, hotels and their management need to do more. The hotel industry, more than any other industry, is dependent on decision-making and strategic thinking (Moldan et al., 2002). The perception of who a guest is and why they use hotel services is changing. While guests in the 14th century sought accommodation for mainly practical reasons such as sleeping or protection against bad weather, modern guests in the 21st century are more demanding and are looking for comfort and relaxation. Hotel managements must therefore react accordingly and adapt to the changing preferences of their guests and at least follow consumer trends in order to stay ahead of the competition. Effective hotel management has therefore become an integral part of tourist satisfaction. It took almost eight centuries for the hotel business to transform itself and meet the needs of its clients in this way. However, the future prosperity of the hotel industry will depend on the application of new techniques and trends. Today, financial performance and protection of the environment have become mainstream issues where it concerns discussions about the sustainability of the hotel industry. Economic sustainability is a key term with regards to the future economic prosperity of the hotel industry. This includes areas such as overall cost reductions, improvements in key financial indicators and customer satisfaction as means by which to guarantee a client’s return. According to Tvaronavičienė and Lankauskiene (2011), economic development is characterised as “the increase of a country’s residents’ standards of living with long term growth from a simple, low-income economy to a modern, high-income economy”. The literature review in the first part of this article lays the ground for the implementation of sustainability in the hotel industry. The second part of this article involves statistical research based on data from the Czech Statistical Office and Tourism Satellite Account. The outcomes, in the form of the need for sustainability in the Czech hotel industry, and their connection to economic performance, will serve as the basis for outlining future opportunities for hotels in the Czech Republic and their application in practice.

2. The need for sustainability in the hotel industry

The growth of the tourism industry has created enormous pressure on hotels to adapt to meet the growing interest in making hotels sustainable for future generations and future economic prosperity. In recent years, great emphasis has therefore been placed on generating awareness about sustainability issues. Sustainability was defined for the first time by the United Nations at a meeting held in Brundland in 1987. In a paper entitled Our Common Future, it defines sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundland, 1987, p.41). This definition laid the foundations for the issue of sustainability. Nowadays, Jayawardena (2013) claims that the concept of sustainability is becoming a standard rather than a new phenomenon. Jauhari (2014) adds that sustainability is “no longer a necessity but a critical factor”, especially with regards to the need to look at new green practices and strategies. Sustainability requires a growing interest from business units and their stakeholders. The growth in interest in sustainability has been proven in a study carried out by the MIT, whereby 70% of companies stated that they had practiced sustainability for the past six years, and 20% in the last two years. Furthermore, two-thirds of respondents stated that sustainability was an inevitable component of a company’s competitiveness (MIT, 2012)

The reasons for the need for a sustainability strategy in the hotel industry vary widely. Firstly, all forms of accommodation combined represent the largest economic sector within the tourism industry, larger than transportation, food and beverage, travel agencies and tour operators (Sloan et al., 2013). Secondly, its negative impact on the environment is the highest for all commercial buildings (Sloan et al., 2013). To prove this, Sloan et al. (2013) explores the portfolio of InterContinental Hotels and a survey it carried out in 2007 into its carbon footprint. To give an idea of how much the hotel industry consumes and what its impact on the environment is, a summary from the Hilton Worldwide’s report on its sustainability mission is given below (Hilton Worldwide, n.d.):

- average guestroom 750 watts of lighting (after sustainability process only 220 watts);
- 182.1 gallons of water per occupied room in 2014;
- saving enough energy to power 81,400 homes for a year (2008 as base year);
- reduction in carbon footprint comparable to taking 122,645 cars off the road (2008 as base year);
- waste reduced by 27.6% from 2009 (2008 as base year).
These facts also reveal that sustainability within the hotel industry and its future prosperity must be dealt with both in terms of economics and the environment. This is due to the fact that financial performance is also a key element for a hotel to be continuously prosperous in terms of “continuous demand and minimal costs for survival” (Bader, 2005). In contrast to the tourism industry in general, the hotel industry is only interested in those tourists who stay overnight and use some form of accommodation. The efforts of managers and stakeholders are therefore focused on ensuring that guests are satisfied and return, on preventing undesirable issues whilst accommodating tourists, and on profitability.

3. The relationship between economic and environmental sustainability

At first glance, environmental and economic sustainability would seem to be competitive. However, its interconnectedness can bring positive added value to managers and stakeholders alike. Within the hotel sphere, authors such as Wang (2014) and Álvarez, et al. (2001) applied this positive relationship between environmental sustainability and financial performance for a short period of time. However, economic and environmental sustainability issues are also interconnected over the long-term as “economic growth always brings risk of environmental damage, as it puts increased pressure on environmental resources” (Brundtland, 1987). The mutual interaction between the two is strongly perceived within the hotel industry. Some sustainability initiatives and improvements do not require large investments (Don Shindle, n.d.), but require great efforts by management and stakeholders to nurture green behaviour. This behaviour can save energy, water and waste with relatively small levels of investment. Peršić-Živadinov (2009, p.11) contradict this by stating that the integration of sustainability into hotel practice is “a solid financial and environmental investment”. Although environmental sustainability leads to economic savings, businesses suffer from balancing two opposite views, good corporate ethics and business profitability (Wang, 2014). According to Peršić-Živadinov (2009), a sustainable hotel financially requires at least 10% more investment than a classic hotel without any sustainability initiatives. However, they claim that those hotels that implement sustainability investments can recoup their costs within five to ten years on energy savings alone (Peršić-Živadinov, 2009). All this is dependent on the level of commitment of managers and stakeholders alike to the application of sustainability issues.

Understandably, and on the basis of previous claims, the economic sustainability issue is strongly perceived as being “in the wider context of environmental or social sustainability”, but has its own parameters (Doane and MacGillvray, 2001). Economic sustainability is generally focused on financial performance, optimal usage of resources and the successful long-term running of the business with profitable results. However, Doane and MacGillvray (2001) strongly argue that economic sustainability must also influence and manage two other pillars, social and environmental sustainability. The positive relationship between environmental and economic sustainability should be seen as a benefit because the integration of sustainability into hotel businesses brings guaranteed added-value to both hotel stakeholders and customers. There can also be a positive impact on costs when implementing environmental sustainability measures.

Within the hotel industry, standard practices with regards to environmental and economically sustainable behaviour can be demonstrated through various successful examples. The majority of major hotel chains largely base their sustainability principles on reducing their impact on the environment in combination with an economic impact. By integrating sustainability into their hotel policies, big hotel chains have created what travel-ler’s perceive to be a global standard. In this regard, Hilton Worldwide is often seen as a pioneer within the hotel industry in the practical application of sustainability. Hilton Worldwide, one of the biggest hotel chains in the world, contributed to a revolution in the hotel industry by being the first to introduce a sustainability programme (Gunther, 2012). Hilton Worldwide (2016) committed itself to the reduction of energy, CO2, waste and water consumption over a long-term period of 5 years (2009-2014). Marriott International also adopted a sustainability policy as a method for maintaining standards associated with “green hotels”. Marriott (2016) primarily implemented environmental sustainability measures such as “recycled key cards and pens, low-energy light bulbs, showerheads that use less water” and many others to endorse their sustainability efforts. An example of best practice is their programme for Leadership in Energy and Environmental Design (LEED) which can save their owners 25% in water and energy consumption (Marriott, 2016). Other hotel chains such as Shangri la
Hotels and Resorts (Sloan et al., 2013), InterContinental Hotels Group and Wyndham Worldwide Corporation (Leslie, 2012), have followed suit and have also included sustainability into their programmes. Understandably, the programmes of these hotel chains generate awareness of the importance of sustainability and encourage the implementation of such strategies by other forms of accommodation too. The InterContinental Berlin proves that a positive relationship between economic and environmental sustainability exists. The hotel has reduced its CO2 emissions by 2,025 tonnes per year, saved 1,600,000 kWh energy per year which is comparable to €267,500 (InterContinental Hotels Group, 2016a). Similar reductions were also made in water consumption at the Holiday Inn Diamond Bar from February 2015 onwards. Water consumption fell by 1.4 million gallons, which is equivalent to $2,000 in associated water costs (InterContinental Hotels Group, 2016a).

Even though the hotel industry, in terms of preserving sustainability, does not burden the environment as much as for instance air transport, the sustainable development of a hotel and its cost efficiency is taken as a measure of its competitiveness in today’s hotel business. Given the fact that the aforementioned authors have proven the positive relationship between environmental sustainability and economic costs, the providers of hotels must concentrate on transforming concrete sustainability issues into practice.

3. Measurability of economic sustainability in the hotel industry

The monitoring of sustainability can help to compare the hotel industry with that of competing sectors in terms of sustainability, guide management with regards to further development and initiate discussions with stakeholders to create a better sustainable economic situation (Jurigová and Lencsésová, 2015). The vague and normative (Moldan, 2003) nature of sustainability forces researchers to find ways to measure it on the basis of concrete results. Another reason for the need to measure sustainability is that its vague and intangible character limits its usage by management to make decisions impossible. As is stated in the document entitled Our Common Future, each nation “will have to work out its own concrete policy implications” because “economic and social systems and ecological conditions differ widely among countries” (Brundtland, 1987). The report goes on to say that if a business unit becomes economically unsustainable it will lead “to increase (d) vulnerability to crises” (Brundtland, 1987, pp.49). Throughout literature, the most frequently used economic measure for assessing sustainability is that of gross domestic product (GDP). It is used by authors such as Daly (1996) and Lawn (2006), and in publications such as the Division for Sustainable Development (2001). However, some authors do not perceive GDP to be a reliable tool for this purpose (Nováček, 2010; Bossel, 1999). This is due to the fact that GDP growth only takes into account economic factors and does not reflect non-economic factors that also contribute to well-being. This is best explained with an example. Tučková, Fialová and Strouhal (2012) state that this indicator has several implications with regards to, for example, economic cost: the amount of money spent on the health service / GDP * 100%, reflects both domestic price levels and demographic structures. Where investment in carbon energy solutions may be essential for the environment and long term sustainability, it may not be the preferred policy option with regards to economic growth as measured by GDP (Tuček, Tučková, 2010). GDP is therefore an inadequate measure with which to measure the sustainability of production and consumption (Joaquín, 2009).

Interestingly, GDP is not typically used to measure the economic sustainability of hotels. New indicators and measures have been adopted by the hotel industry to create stability. In order to endorse the impact of the economic dimension of sustainability, Jones et al. (2014) note the importance of economic issues such as employment opportunities, increases in shareholder value and capital development. Similarly, the World Tourism Organisation (2004) issued economic indicators for the tourism industry as a whole which include: the change in average price per room; the % of return visitors; the % of services and accommodation open all year round; the number of rooms with air conditioning and/or heating; the revenue from accommodation type per year; etc. A few years later, the European Union (2013) followed suit by issuing economic indicators that mirror sustainability. These indicators include many that measure the economic performance of hotel businesses and include: the number of tourists nights per month; daily spend per tourist; average length of stay of tourists and visitors; average room price in a given destination; percentage of jobs in tourism that are seasonal; the number of employees directly employed within the tourism industry; and others.
Even though economic and environmental sustainability are powerful intangible means by which to generate growth and prosperity, current management systems in general often fail to apply economic sustainability in practice (Doane and MacGillivray, 2001). This is confirmed by Jones et al. (2014) who claim that the majority of studies of, and best practices in, hotels concentrate on environmental sustainability. The attention of managers, especially in the hotel industry, as has been proven through the literature review, is mainly focused on reducing their impact on the environment. The economic sustainability of hotels should therefore be looked at more intensely, particularly with regards to its potential for improving future economic performance.

4. Methodology

A recent study published by Ernst & Young (2013) proved the importance of the hospitality sector. The study states that accommodation and food and beverages are major contributors to the European economy and claims that hospitality is a key driving force behind the economy. This study focuses on the hotel industry in the Czech Republic and applies data based on statistics from the Czech Statistical Office and Tourism Satellite Account. According to CZ NACE (Czech General Industrial Classification of Economic Activities within the European Community) tourism consists of four economic activities, namely: transport; hotels and restaurants; storage and communication; travel agencies and tour operators (Eurostat, 2008, Czech Statistical Office, 2015a). Although it is possible to analyse sustainability across all four of these economic activities, the hotel industry lends itself particularly well to it due to its unique ability to change quickly and effectively to sustainability issues. According to the CZ NACE classification, the hotel industry falls within category I “Accommodation and food service activities” (CZ NACE, 2016). This category includes accommodation for customers for a short period of time, as well as long-term time-limited accommodation excluding long-term accommodation in the form of rental flats. The Tourism Satellite Account offers additional important data for this analysis regarding internal tourism and the utilization of accommodation facilities in the Czech Republic. It is summed up by the expenditures spent by non-residents in the Czech Republic (inbound) and the expenditures of residents spent on internal (domestic) travel (Czech Statistical Office, 2015b). The contribution of internal tourism to the accommodation sector was subjected to further statistical analysis to establish the statistical importance between the set variables.

The aim of the research

The aim of this research was to prove the statistical importance between general gross domestic product and internal tourism (domestic and inbound) expenditure on accommodation in the Czech Republic. The main focus was to prove the existence of a mutual relationship between the two variables in order to support or refute the research hypothesis as stated below:

It is assumed that a mutual relationship exists between GDP and internal tourism (inbound and domestic tourism) expenditure on accommodation.

Statistical tools used

To determine the relationship between the selected indicators regression and correlation analyses can be used, or econometric models. As only the two main characteristics are to be compared, the first tool is more suitable for this situation. The correlation itself does not imply that there is a causal relationship between the variables, but it can refer to the linear relationship between them. According to the observed data, the Pearson correlation coefficient can be used. However, the data should be examined visually to determine the possible linear/non-linear dependence, as is the case for the regression analysis (Bluman, 1997). The Pearson product moment correlation coefficient varies between -1 (strong negative association) and +1 (strong positive association). Scatterplots are a widely used tool for proving whether a linear relationship exists. Where there is a significant correlation coefficient, the linear relationship can be determined by the regression line. In a simple linear regression analysis the formula describing the relationship between the variables is the estimation of the linear equation $y = ax + b$, where $y$ represents the dependent variable (predicted value), $x$ the independent variable, and $a$ and $b$ the parameters of the model (slope and intercept). For the estimation of the parameters of the model
the Least Square Method (LSM) is usually used (Draper, Smith, 2014). As the data are on different scales, it is necessary to convert them into the indexes (%) with the given baseline. The index is therefore the ratio of the value for the current period divided by the baseline value of the same indicator. If it is higher than 1 it reflects the fact that the value in the given year has risen in comparison to the value of the base year. In our analysis the year 2003 was selected as the base year.

5. Results

According to the literature review the most common method for measuring economic sustainability is gross domestic product (United Nations, n.d.; Daly, 1996; Division for Sustainable Development, 2001; Lawn, 2006; Nováček, 2010). Even though within the tourism industry the gross domestic product of tourism is used as a key indicator of the economic performance of tourism within a country (United Nations, n.d.), it is not essential to use it for the purposes of finding correlations. The main reason for this is that according to Tourism Satellite Account, the consumption of internal tourism is a part of the GDP of tourism and therefore the dependence and relationship between these two variables is clear. The gross domestic product for the Czech Republic as a whole was therefore taken into account. Gross domestic product measures the performance of an economy and is one of the most monitored indicators of economic health. The second most widely used indicator is that of the consumption of internal tourism as monitored by Tourism Satellite Account. This represents the expenditures that were spent on both domestic (by residents of a certain country) and inbound (by non-residents travelling to a certain country) tourism (Czech Statistical Office, 2015b).

Figure 1. Trend in the development of domestic and inbound tourism expenditure on accommodation

Figure 1 shows the total domestic and inbound tourism expenditure on accommodation for the years 2003 - 2013. As is evident, the trend (described by the linear regression line) is upwards, but there was a sharp fall during the crisis period 2008 - 2012. The data for 2013 are better than at their peak in 2007, indicating a full recovery to pre-crisis levels and further expansion. The slope of the linear regression line is only 350.5 which, without the fall in this parameter (average annual increase), would have been higher.
According to Table 1 it is clear that GDP over the given period rose, but that in 2009 - 2010 it fell below 2008 levels, likewise for GDP per capita in the period 2009 – 2012. However, the crisis had a substantially larger impact on the accommodation sector (see Figure 2). When each of the years for the studied period are compared to the base year 2003 (for each of the described indicators) it is evident that the decrease in expenditure on accommodation started one year prior to the decrease in GDP and that the drop was much sharper. As can been seen in Figure 2, by 2013, when expenditure on accommodation had recovered and grown beyond the peak achieved in 2007 (prior to the crisis), expenditure had increased by almost 30% in comparison to the base year. However, over the same period, both GDP indicators had increased by more than 40% in comparison to 2003.

We can also describe the relationship between the indicators through the correlation coefficient (see Figure 2). It is evident that GDP and GDP per capita must be correlated but that even though the correlation for accommodation is positive, with a correlation coefficient of 0.5, it is not so strong. The reason for this is the crisis because the correlation coefficient between accommodation and GDP for the period 2003 - 2007 is higher than 0.95.

The same problem is illustrated in the scatterplot (see Figure 3). The best-fit linear regression line is in this case $y = 87.35x + 267041.7$ which indicates a positive increase in GDP of 87.35 when accommodation rises by 1. If only the years 2004 - 2007 and 2013 are taken into account, the linear dependence between accommodation and GDP would be almost perfect. However, the years 2008 - 2012 are completely out of this trend. On this
basis, it is clear how big an impact the crisis had on the relationship between these two indicators. In this case it can be assumed that GDP is dependent on accommodation. However, if an inverse relationship were to exist, an increase in GDP by 1 would imply and increase in expenditure on accommodation of 0.003.

![Graph showing the dependence of domestic and inbound tourism expenditure and GDP (purchase price)](image)

**Figure 3.** Dependence of domestic and inbound tourism expenditure and GDP (purchase price)

### Conclusion

Hotels offering accommodation and hospitality services in the 21st century are operating in a turbulent market subject to rapid globalization and constant change. The economic crisis is evidence of the impact this business environment can have and has had on almost all sectors of the tourism industry, including the accommodation sector. Managers had to rapidly decide how to respond effectively to the changing conditions during the crisis. Experts estimate that this so called “crisis in the hotel industry” occurred when the euro exchange rate fell to CZK 24/EUR 1. At that time (around 2009), hotel profits fell dramatically and they were forced to reduce costs accordingly. As a result, most hotels were forced to focus more on customer care. In Figure 3 it is clear that for the period 2003 – 2007 the growth in internal tourism expenditure on accommodation ran parallel to the growth in GDP, whereby the decline in 2007 was only reflected in the GDP figures a year later. The decrease in expenditure on accommodation by both domestic and foreign tourists was much sharper. It took until 2013 for expenditure levels to return to their pre-crisis levels and for the growth trend to continue. The impact of the crisis years is clearly visible and can in part be explained by the decline in the Euro exchange rate, but also by an overall decline in the income levels of individual tourists. Residents, with commitments to at least one foreign holiday, therefore had less money at their disposal for domestic weekend trips.

The trends in tourism are highly uncertain. This is not only due to the migration crisis but also due to general security issues at tourist destinations. Fortunately, the Czech Republic is still viewed as a safe destination.

### Acknowledgements

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SUSTAINABILITY OF THE PENSION SYSTEM OF THE SLOVAK REPUBLIC IN THE CHANGED SOCIO-ECONOMIC CONDITIONS

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Abstract. Pension systems are a standard part of the macroeconomic and microeconomic environment of developed countries. Pension schemes, particularly developed after World War II and based on continuous funding system are currently getting influenced by the negative changes such as demographic fluctuations, changes in economic growth and high unemployment. These changes put the high burden on economically active population and that increases pressure on the necessary reform. Slovak Republic in order to ensure stabilization of the pension system, taking into account the adequacy of pension benefits, had decided to reform the pension system, which means that was applied combined method of financing of the pensions. This change turned into high transition costs which are significantly destabilizing the pension system and in the short term these costs are deepening the deficit of public finances and also the whole financial sustainability of the pension system. The reform of the pension system required not only the introduction of the funded method of financing of pensions, but also caused changes in the interim financing arrangements. The most important parametric changes made in the Slovak Republic are: linking retirement age to life expectancy, changing of the mechanism of valorisation of pension benefits and changes in the funded pension schemes mainly driven by the global financial crisis. Adopted parametric changes will significantly improve and strengthen the long term sustainability of the pension system and public finances.

Keywords: sustainability of pension system, ageing, retirement age

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JEL Classifications: G23, G28, J26

1. Introduction

The basic objective of social policy is to create for residents such legislative and institutional framework and to adopt and implement measures which will ensure the sustainable development of human, economic, social and cultural rights and resources aimed to ensure decent living conditions for all (e.g. Streimikiene 2014). Pension systems are a part of the macroeconomic and microeconomic environment of all developed countries. Pension schemes developed after World War II and also based on continuous financing system, ran into financial crises impose ever higher demands on taxpayers, respectively on the economically active population (Rievajová, Sika, Husáková, 2012, p. 476). Financing of the pension system is an important part of public finances and...
therefore very significantly affect its sustainability. Pension systems ensure the quality of life for a significant part of the population and also its consumption, which subsequently turns into economic development and other components of the national economy. From the opposite point of view, pension system is significantly influenced by demographic trends, employment and socio-political and economic situation in the country (Starić, Voronchuk 2015; Oganisjan et al. 2015; Samošonok et al. 2015; Pather 2015; Matetskaya 2015; Rezk et al. 2015; Tvaronavičienė et al. 2015).

The changes taking place in different countries have their own specific and historical differences. While in Western Europe there are changes in pension systems under constant pressure of demographic development, in Eastern European countries there are much more radical reforms, which are caused by not only the pressure of demographic trends, but mainly political and economic changes in these countries. All EU countries face the challenge of ensuring the financing of compulsory pension schemes. The risk of financial burdens and risk of reducing of the functionality of the pension system are challenges for major changes of pension system. Reform steps taken in the Slovak Republic, which operates a three-pillar pension system, require in accordance with the socio-economic development constant changes and corrections. The aim of this paper is to characterize the current pension system, to highlight the problem of sustainability of the pension system in terms of public finances and demographic trends and to show out measures which should ensure long-term financial stabilization of pension system.

2. Social security as a part of social system

Social system includes taxes, social insurance, health care, legislation dealing with labor relations, public education or housing. According to the literature social system or social security system is defined as a group of social incidents or risks for which needs relevant political and administrative measurements. These social states and risks include sickness, old age, childhood, unemployment, loss of breadwinner, disability, maternity and poverty (Karpiš et al. 2006, p. 3). Social security system is an instrument for the implementation of the objectives and tasks of social policy and creates the core of social policy. In the Slovak Republic it is made up of three sub-systems: social insurance, state social support and social assistance.

Social insurance is a formal insurance systems established to ensure the protection of the economically active population in the case of specific social occurrence (disease, pregnancy and maternity, old age, injury, death, unemployment ...) (Šipikalová, 2013, p. 58). State social support system is mainly funded through the state budget, the state takes the role to participate in solving some of the state-recognized life situations in order to prevent unwanted decline in living standards of families caring for dependent children. (Sika, 2014, p. 55). Social assistance is one of components of social protection, social assistance acts as a safeguard mechanism for individuals and families in the social accidents. (Husáková, 2014, p. 51) Social assistance reflects the fact that the citizen is in a situation when it is not in his forces to become economically independent, respectively. It is not possible neither with the help of his family. Social assistance differs from social insurance and state support in its application, which is conditioned by individualized social necessity, reliance, or temporary need and the possibilities of social conditionality of aid agencies.

In the Slovak Republic in terms of financial sustainability as the most problematic part of the Social Security system appears ensuring old age pension, mainly due to demographic risks, changes in economic growth, high unemployment rate. The main task of social system is ensuring an adequate income level in long-term situations, during which the individual is unable to obtain financial resources by their own activity, mainly due to age. Therefore, we can conclude that Pay-as-you-go pension system has become, despite its modifications unsustainable in the long run; it makes a significant burden on public finances and does not provide socially acceptable level of compensation for several generations. These factors lead to the fact that the pension system in the Slovak Republic, especially in 2004, has undergone significant changes. Nowadays it consists of three pillars. The first pillar (mandatory pension insurance) through systematic and parametric changes changed from the security system to the insurance system. The implementation of social insurance was established by Social Insurance Act with effect from 1 January 2004. The second, fully funded, defined-contribution pension pillar (retirement savings), is realized by pension management companies under the law on pension insurance from
1 January 2005. The third pillar (voluntary supplementary pension insurance) is contribution-defined, funded through capitalization and performed by supplementary pension companies pursuant to the Act on supplementary pension savings from 1 January 2005 (Sika, 2013, p. 57-58).

3. Sustainability of the pension system in relation to public finances and demographic trends

Inherent risks of the financial burden in the future, several times higher current debt of public finances, risks of reducing of the functionality of the system were challenges for conceptual change in the pension scheme in the Slovak Republic. Intention of the reform was to conform to the three specific objectives. The first objective was to change the existing retirement system based almost exclusively on the pay-as-you-go system to modern three-pillar system with a clear relationship between the premium paid and the subsequent benefits from the system. The second objective was to improve long-term fiscal sustainability of the system, especially in the context of the expected demographic changes in coming decades. The third objective was to diversify the sources of income in old age (PAYG pillar - Labor Market, funded pillar - Capital Markets), thereby partially reducing the risk of negative impact on pensions due to adverse development of different pillars. (MLSAF, 2011, p. 4)

In terms of evaluation of the aims of pension reform is important that the objective of long-term fiscal sustainability is not fulfilled and the setting of parameters for the first and second pillar leaded to an even greater deepening of deficits in the pension system, which is exposed in the short term (Fig. 1).

![Fig.1. The deficit of the pension insurance system during 2004-2015 (in mil. €)](source: Own processing based on data of the Social Insurance Agency. Bratislava: SP, 2015.)

In the long term, each country has a number of instruments to maintain the financial balance of the pension system within acceptable limits, the most frequently applied measurement is raising of the retirement age, changing the mechanism of valorization of pension and the inclusion of automatic stabilizers. In addition to financial sustainability it is necessary to take into account the adequacy of pension benefits.

All the revenues of Social Insurance Agency used for old-age insurance come from the old-age insurance contributions, which are required to pay each working citizen of the Slovak Republic. The current monthly contribution is at the level of 18% of gross salary. Part of the contributions in the second pillar from the Social Insurance Agency is now redirected to the saver’s personal account in pension fund management companies (currently 4% of gross pay, with gradual increases to 6% in 2024). Rest of the money (contributions to the first pillar -14% of the gross wage) becomes the first pillar’s income. If the insured is not participating on second pillar, his entire deductions of 18% of gross wages remain to the Social Insurance Agency as income in the first pillar.
The transition from pay-as-you-go scheme to the combinational system of financing is associated with transformational costs caused by the re-routing of insurance to private pension companies. A gradual upward trend of transformational costs was pressed by the percentage change in the payment to the second capitalization pillar from 9% to 4% in 2012. And also by the opening of the II pillar several times, this operation had weaken II. pillar and strengthen the political signification of the first pillar. During the quadruple opening of the pension system decided to enter 71,317 savers, but 424,312 savers decided to return to a purely national PAYG pension system, because the system considers them as if they had never been in the private pension system (Table 1, Table 2).

Table 1. Overview of the contributions transferred to the second pillar

<table>
<thead>
<tr>
<th>in mil. €</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions forwarded to PFMC 2005 - 2015</td>
<td>304,7</td>
<td>605,7</td>
<td>749,8</td>
<td>815,2</td>
<td>780,4</td>
<td>800,2</td>
</tr>
<tr>
<td>Revenue of Social Insurance Agency after opening 2. pillar</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>132,3</td>
<td>108,8</td>
<td>0,0</td>
</tr>
<tr>
<td>Contributions forwarded to PFMC net of proceeds from the opening II. pillar</td>
<td>304,7</td>
<td>605,7</td>
<td>749,8</td>
<td>682,9</td>
<td>671,6</td>
<td>800,2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>in mil. €</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions forwarded to PFMC 2005 - 2015</td>
<td>848,3</td>
<td>804,9</td>
<td>413,6</td>
<td>438,0</td>
<td>444,6</td>
<td>7 005,4</td>
</tr>
<tr>
<td>Revenue of Social Insurance Agency after opening 2. pillar</td>
<td>0,0</td>
<td>44,2</td>
<td>239,7</td>
<td>0,1</td>
<td>566,9</td>
<td>1 092,0</td>
</tr>
<tr>
<td>Contributions forwarded to PFMC net of proceeds from the opening II. pillar</td>
<td>848,3</td>
<td>760,7</td>
<td>173,9</td>
<td>437,9</td>
<td>-122,3</td>
<td>5 913,4</td>
</tr>
</tbody>
</table>

Source: Ministry of Labor, Social Affairs and Family.

In the future, these costs will rise again, as from 2017, the rate of mandatory contributions will increase by 0.25% per year up to 6% in 2024.

Table 2. Impacts of increasing acceleration in the rate of compulsory contributions of II. pillar by 0.25% per annum for a maximum of 6%

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions collected on old-age insurance</td>
<td>490 604</td>
<td>544 075</td>
<td>603 912</td>
<td>670 329</td>
<td>743 389</td>
<td>824 411</td>
<td>914 263</td>
<td>1 013 909</td>
</tr>
</tbody>
</table>

Source: Ministry of Labour, Social Affairs and Family.

The transition from PAYG financing to the combinational financing is associated with transformation costs caused by the re-routing of insurance to private pension companies. These costs will increase gradually until the beginning of the period of pension payments from the funded pillar (2015), that means till the time when the transition costs will gradually diminished by the savings on the expenditure side. Starting with the year 2015 3000 savers could ask for payment of the pension from II. pillar, but the actual number of those who used this option was negligible, only 284 savers. This negative phenomenon occurred due to very low offer of pensions from private life insurance companies. Real decline of transformation costs are expected with the increase of the number of pensioners, who have been savers in the private pension system (Table 3, Table 4).

Table 3. Number of savers in PFMC by age groups

<table>
<thead>
<tr>
<th>Age group</th>
<th>till 25 years</th>
<th>26-35</th>
<th>36-45</th>
<th>45-55</th>
<th>From 56</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of savers</td>
<td>70 678</td>
<td>457 910</td>
<td>522 467</td>
<td>261 430</td>
<td>27 827</td>
</tr>
<tr>
<td>% share</td>
<td>5,3%</td>
<td>34,2%</td>
<td>39,0%</td>
<td>19,5%</td>
<td>2,1%</td>
</tr>
</tbody>
</table>

Source: Ministry of Labor, Social Affairs and Family.

Social Insurance Agency improves the financial sustainability of the pension system by the transfer of funds from other profitable social insurance funds, but this is done without considering citizens’ claims in the form of pension benefits, which clearly is non-systemic element in social insurance. The current level of rates of social security contributions do not correspond with actual needs of citizens and therefore the Slovak government is preparing the revision of collection of taxes and contributions.

2 Pension Funds Management Companies
### Table 4. Covering of deficit in pension insurance by 31.12.2014 (in thousands €)

<table>
<thead>
<tr>
<th>Covered Fund of Insurance</th>
<th>Deficit (in thousands €)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic fund of sickness insurance</td>
<td>- 122 000</td>
</tr>
<tr>
<td>Basic fund of pension insurance</td>
<td>+ 1 461 000</td>
</tr>
<tr>
<td>Basic fund of disability insurance</td>
<td>- 121 000</td>
</tr>
<tr>
<td>Basic fund of accident insurance</td>
<td>- 94 000</td>
</tr>
<tr>
<td>Basic fund of guarantee insurance</td>
<td>- 25 000</td>
</tr>
<tr>
<td>Basic fund of unemployment insurance</td>
<td>- 165 000</td>
</tr>
<tr>
<td>Reserve fund of solidarity</td>
<td>- 934 000</td>
</tr>
</tbody>
</table>


The Slovak Government had realized the urgency of the sustainability of the pension system, but also the adequacy of pensions, and has adopted changes of the pension system, aimed at improving the negative trends (Fig.2).

The most important parameter changes are:

- Linking retirement age to life expectancy age,³
- Linking valorization mechanism to pensioners inflation,⁴
- Strengthening of the solidarity in the granting of pensions from PAYG pillar,⁵
- Changes in the second pillar pension system.⁶

![Fig2. Measures to change the balance of the pension system (% GDP)](image)


According to initial projections from the beginning of 2012 deficit had to deepen the existing 3% to 9% of GDP, that means by 6 percentage points. The pension reform made in 2012 improves and strengthens the sustainability of public finances. In 2060 the deficit would reach a level of 5% of GDP, that means an improvement of the balance of public finances by 4 percentage points.⁷

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³ § 65a of Act no. 461/2003 Coll. on social insurance, as amended.
⁴ § 82 Act no. 461/2003 Coll. on social insurance, as amended.
⁵ § 63 Act no. 461/2003 Coll. on social insurance, as amended.
⁶ § 22 of Law no. 43/2004 Coll. on retirement pension saving and on amendments to certain laws, as amended.
4. Employment as a factor of the sustainability of the pension system

Unemployment is one of the main challenges of European and global economy and in terms of the pension system form the starting point for the sustainability of expenditure and consumption. The most important is competitiveness and sustainability of employment, which is closely linked with the dynamics and the overall success of the economy. In comparison with other EU countries, Slovakia has a relatively low employment, especially of young people but also older people. This may create various risks to the current pension system. The global economic crisis has significantly affected the economy and the global labor market. Slovakia’s economic growth is largely based on the production and export of foreign companies using Slovak cheap labor. (Rievajová, Klimko, 2015)

Table 5. Employment in EU 28 in age group 20-64

<table>
<thead>
<tr>
<th>Year</th>
<th>Countries of EU 28</th>
<th>Slovakia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Employment in %</td>
<td>Men</td>
</tr>
<tr>
<td>2004</td>
<td>67,4</td>
<td>75,5</td>
</tr>
<tr>
<td>2005</td>
<td>67,9</td>
<td>75,9</td>
</tr>
<tr>
<td>2006</td>
<td>68,9</td>
<td>76,8</td>
</tr>
<tr>
<td>2007</td>
<td>69,8</td>
<td>77,6</td>
</tr>
<tr>
<td>2008</td>
<td>70,3</td>
<td>77,8</td>
</tr>
<tr>
<td>2009</td>
<td>69</td>
<td>75,7</td>
</tr>
<tr>
<td>2010</td>
<td>68,6</td>
<td>75,1</td>
</tr>
<tr>
<td>2011</td>
<td>68,6</td>
<td>75</td>
</tr>
<tr>
<td>2012</td>
<td>68,4</td>
<td>74,6</td>
</tr>
<tr>
<td>2013</td>
<td>68,4</td>
<td>74,3</td>
</tr>
<tr>
<td>2014</td>
<td>69,2</td>
<td>75</td>
</tr>
<tr>
<td>2015</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Target of the Strategy Europe 2020</td>
<td>75%</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Own processing of data by Eurostat

According to Eurostat data, the employment rate of the population aged 20-64 years in 2015 increased by 1,8% to 67,7% (Table 5). This is the most significant increase after year 2009, when crisis appeared in Slovak economy. The level set in the Strategy Europe 2020 is 75% for EU28 and for the Slovak Republic it is defined by the 72% level of employment. Employment growth in the period 2004-2014 is characterized by the following graph (Fig.3):

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8 data not available to the public yet
The period from 2010 to 2013 can be characterized as a period of stabilization after a significant decline in employment caused by the economic crisis. The significant increase was recorded in the EU countries in 2014, when employment grew by 0.8%.

4.1. Prognosis of employment until year 2020

Employment forecasts done until year 2020 were prepared in three versions. (Bleha, B., Šprocha B., Vaňo B, 2012) Static version considers the fact that economic activity and even employment in Slovakia are relatively low and under the least favorable conditions both (employment and economic activity) will stagnate at the values of 2011. This assumption is applied in a static version for the entire region, for both sexes for all ages.

Targets of employment adopted by the Strategy Europe 2020 forms the basis of the optimal version of forecasts. The basic thesis of the optimal alternative is to achieve 72% employment for the population of the age group 20-64 years till 2020. The increase in employment in the forecast does not grow proportionally in every region but takes in account regional specifics, difference of age and sex. This model assumes a gradual reduction of disparities, especially between regions. Increasing of the employment rate in the optimal alternative means increasing economic activity while the unemployment rate is reducing. Medium variant’s forecasts are approximately between static and optimal variant data. (MLSAf, 2014, p. 23)

If the rate of economic activity has not changed till 2020 the number of economically active persons should be reduced from the current 2.7 million to 2.6 million. The other two scenarios would mean increase the number of economically active to 2.8 million (Medium variant), or over 3 million (optimal variant). (Bleha, B., Šprocha B., Vaňo B, 2012).

Prognosis of total employment till 2020 is favorable for Slovakia, especially in the group of population with high level of education. At the same time should be an obvious loss of job opportunities for the population with low and medium levels of education. The key employment sector in Slovakia is currently manufacturing and still remains the same position till 2020. The most significant fall in employment is supposed in the agricultural sector, forestry and fishing sector. In all sectors is projected increased demand for labor with a high level of education. Also in all major classes of employment it is expected to increase employment of people with a high level of education.

In terms of profession in 2020 should be the highest number of persons employed as technicians and associate professionals. High share of total employed will keep workers in services and trade. Skilled agricultural, forestry
and fishing employees will record decline in employment according to the forecast. (MLSAF, 2014, p.25)

5. The aging of the population as a demographic process in the context of the pension system

Ageing is not only a physiological change in the human body, but is also very significant social change for each individual. Old age is usually associated with the end of the active social life and retirement. Retiring brings man loses both its social position and in income obtained by working activities. (Matlák et al, 2009, p. 145, 146).

The first signs of an aging of all the population can be seen in the Slovak population since the mid-60s. More significant acceleration of this process is exactly what happens now: “baby boomers” from after-war period are reaching retirement age and on the other hand, at the age of highest fecundity (physiological fertility) are age groups born in the first half of the 90s, which are characterized with lower abundance. (SO SR, 2013, p. 38).

According to the analysis of long-term sustainability of the pension system of the Slovak Republic published by the Ministry of Labor, Social Affairs and Family, will increase male life expectancy of 10.6 years and for women by 8.6 years until the 2060. Slovak population will be ageing the fastest in the EU. While today 100 Slovaks in working age from 15 to 64 years count 19 people aged 65 years and more, in 2060 it will be almost 66 on 100 productive persons.

According to the European Commission report about population aging, public expenditure is sensitive to aging of population and they will increase significantly till 2060 (retirement benefits, retirement pensions, health care, long term care, education, unemployment benefits). In 2013, these expenses created 18.1% of GDP and were the fifth lowest in the EU. By 2060, according to the basic scenario, it is supposed the increase of 4% to 22.1% of GDP. The increase in expenses in 2060 would be the fifth highest in the EU. According to the AWG risk scenario this increase would be the highest even in the whole EU to 9.3% of GDP (IFP, MF, 2015, p. 1).

Expenditures on pensions will fell slightly by 2030. The decrease is mainly caused by binding the retirement age to life expectancy from 2017, followed by a lower number of newly granted pensions. Therefore, the Slovak pension model predicts fewer new pensions by 2030 every year. After 2030, the number of new retirees will start to rise again according to demographic causes. More pensioners and increasing life expectancy mean significant growth in expenditure on pension benefits after 2030 again (IFP, MF, 2015, pp. 3-4).

In line with the target of ensuring long-term financial sustainability of the pension system it is providing a new way of gradual automatic adjustment of the retirement age, depending on the dynamics of the average life expectancy reported by the Statistics Office of the Slovak Republic, common for men and women in the current retirement age expressed in whole years (reference age). A new way of determining the age of retirement will be applied from 1 January 2017. Since 2017, the retirement age will be increased annually by 45 to 50 days. So people who reach retirement age in 2024, should retire as a 63-year-olds, those who reach retirement age in 2032, they retire at age 64 years, and those retire in 2040, they will retire as a 65-year-olds.

Table 6. Retirement age according to life expectancy

<table>
<thead>
<tr>
<th>Year</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>62,00</td>
<td>61,57</td>
</tr>
<tr>
<td>2017</td>
<td>62,14</td>
<td>62,14</td>
</tr>
<tr>
<td>2018</td>
<td>62,28</td>
<td>62,28</td>
</tr>
<tr>
<td>2019</td>
<td>62,42</td>
<td>62,42</td>
</tr>
<tr>
<td>2020</td>
<td>62,56</td>
<td>62,56</td>
</tr>
<tr>
<td>2030</td>
<td>63,94</td>
<td>63,94</td>
</tr>
<tr>
<td>2040</td>
<td>65,26</td>
<td>65,26</td>
</tr>
<tr>
<td>2050</td>
<td>66,49</td>
<td>66,49</td>
</tr>
<tr>
<td>2060</td>
<td>67,68</td>
<td>67,68</td>
</tr>
</tbody>
</table>

*Source: Council of Fiscal Responsibility*
In our opinion, the negative trends in demographic indicators can be reversed, or mitigated through population policy, personalized support of families and migration, as well as improving of education and higher employment. The result of these policies may increase birth rates and migration, thereby helping to avert ominous trend, but it is important to note that these interventions not remove the negative trends, but probably only alleviate them.

Conclusions

Over the next decade the impact of demographic change on the sustainability of public spending begins be much more intensive. Increased life expectancy, the relative increase in the number of pensioners comparing to the active population and fewer births, those are the factors which will affect areas such as pensions, health, long-term care and education. In order to strengthen the financial sustainability of the pension system of Slovak Republic will have to incorporate automatic stabilizers in the calculation of pension entitlements. This action, however, causes a reduction in the pensions, which will have a negative impact on the living standards of Slovak pensioners.

Employment forecast for the Slovak Republic by 2020 has a favorable outlook and expects to increase employment, which would have a positive impact on the sustainability of the current pension system. Increasing employment is refillable challenge for the Slovak Republic, comparing to ageing of the population, which is demographic situation that cannot be reversed immediately but will be needed structural measurement to fear with this topic. Ageing of society, which is seen as a threat that will have far-reaching and irreversible effects in the point of view of economists, can in fact be seen as progress in many scientific disciplines. Cannot be abstracted from the impact of aging on the pension system, but this impact cannot be considered as tragic and irreversible. Countries need to focus their attention and adapt their systems and policies; not only in pension schemes, but also adopt systems in the light of new expectations, but also unexpected events which can largely affect the life situation of the individual groups of society.

Aknowlegements

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Research papers:


Books:


Chapter of book:

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MAIN TRENDS OF REGIONAL POLICY ENSURING FOOD SECURITY IN DEVELOPED COUNTRIES

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Abstract. The paper reflects on question of regional policy ensuring food security in the context of closely interrelated economic, social and ecological components. Having performed analysis of common agricultural policy, programs for rural development, impact of world trade organization, integrated product policy, question of food security monitoring, influence of multinational companies, genetically modified products, programs for food support; we come to the conclusion that to the main trends of regional policy in the sphere of food security belong: establishing interregional and international import-export food operations, creation of regional reserves of strategically important products, direct/indirect financial and consultation support of agricultural enterprises, development of infrastructure facilities for transporting, storage, distribution of products, food support for socially unprotected groups of population, promoting development of eco-oriented production, implementation of control measures for the prevention of counterfeit in the trading network, control of production and sale of genetically modified products, formation of ecologically oriented thinking population.

Keywords: food security, regional policy, sustainable development, common agricultural policy, integrated product policy, rural development.

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JEL classifications: Q18, Q57

1. Introduction

Under conditions of growing population and increasing demand for food products, it is important to provide search on rational elements of regional policy ensuring food security in the countries with developed mechanisms in market economy. Along with regional economic growth, nowadays, important priorities are: improving quality of life, health of population, increasing natural resource efficiency of production capacity, resulting in creating favorable environment in regions on the basis of sustainable socio-economical and ecological development (Dezellus et al. 2015; Travkina 2015; Branten, Purju 2015; Šimelytė et al. 2016; Raudeliūnienė et al. 2016; Tvaronavičienė 2016; Rezk et al. 2016).

The concept of sustainable development is recognized by the international community as the dominant ideology of human life in the twentieth century (Summit “Earth” 1992), therefore particularly important issue is providing modern regional policy regarding food security with taking into account market, social and ecological aspects (Figure 1).
The research object of the current research is regional policy ensuring food security. The goal of the research is to define main trends of regional food securing policy in developed countries in the context of market, social and ecological aspects.

2. Common Agricultural Policy

According to world trends, national level of food security is determined by the development of regional systems, so the process of guaranteeing food security of each state should be realized taking into account security in all local aspects. In the developed world has recently seen two trends: the growing political importance of regions and multiplying the number of regional initiatives in the economic field.

Regional structural policy of the European Union is considered a good example of multilevel interaction. In regional structural policy, regional strength depends not only on the availability of administrative and financial resources, but also on the organization of the decisions of regional structures and their integration in vertical multilevel structure (Bentz 2007). Model of regional development of the European Union is based on the strategic partnership between central government and local authorities, businesses and public organizations. In the context of EU regional policy, more attention is paid to the underdeveloped and structurally weak areas. Each of these groups requires an individual approach to solving their basic problems. This can be explained by the principles of the EU regional policy, one of which – programming: center have not only just financing the region, but also allocates funds for specially designed programs (target points that influence the development of the whole region) (Datsyshyn 2006).

In modern terms, the European food safety model is characterized by enhancing vector of sustainable rural development. Solving the problem of rural areas initially regarded as part of the common agricultural policy (CAP), and later became part of EU regional policy (Pyasetska-Ustych 2011). Despite the fact that EU regional policy is formed as a separate sector and ranks second place in the budget of community after CAP, it is inextricably linked with the creation of favorable conditions for the sustainable development of rural areas. Modern planning of social and economic development take into account the need to accelerate institutions of rural society, through which possible revival of the regions that are in a state of decline, improving the demographic situation, maintaining settlement network and protection of natural agricultural landscapes.

Common agricultural policy is implemented in the EU regions on such principles as: market unity that provides free trade of agricultural products between member-countries, the abolition of quantitative restrictions, duties and taxes, as well as establishing uniform prices for agricultural products in the EU and the only one mechanism for their support;
community preference that means giving preference to products that are produced in the countries of community;
financial solidarity that provide common responsibility of all member-countries for the financial consequences of the CAP.

At the beginning of XXI century, the leading idea of CAP was ensuring sustainable functioning of agricultural sector EU through rural development funding and strengthening environmental protection requirements and safety of agricultural products. It was determined that socio-cultural approach has replaced functionally-production one, that is introduced the principle of “multi-functionality” that put agricultural manufacturer at the center of social, cultural and natural systems. Also, it was announced the formation of a special “European model of agricultural activity”. The most important priorities in this period include: the protection of natural landscapes and maintaining the vitality of rural areas, development of rural communities, ensuring their activity and stability. The second most important main direction of reforming CAP at this stage is the development of rural areas, conducting an integrated policy with a single policy measures to ensure greater interaction between rural area development and policy of prices and market within the CAP (Gogol 2011). Based on generally accepted priorities of rural development can be formulated key goal of EU rural development policy that consist in creating conditions for the achievement of life quality that is recognized by society.

3. Programs for rural development

In a separate key, sphere of regulation and support of the agricultural sector singled out the question of life quality in rural areas and stimulating non-agricultural employment. Regional support in this area should focus on stimulating the development of small businesses and crafts in rural areas; tourism development; maintaining landscapes; development of education for the needs of multidisciplinary rural economy; modernization of rural infrastructure; creating conditions for innovative use of renewable energy sources using agricultural products and so on.

The object of regional policy is the different level of regional inequalities: differences in levels and conditions of life, employment and unemployment, the pace of economic development of individual regions. To the main financial instruments of EU regional policy aimed at the implementation of aforementioned events and leveling disparities between richer and poorer EU regions by structural funds: European Regional Development fund, European Agricultural Guarantee fund, European Social fund and Cohesion Fund.

Value of regional policy for rural development associated with the provision of financial assistance to farmers, small and medium businesses. To the list of the support main directions include:
- allocation of funds for acquisition of new technologies for agricultural production and rural businesses;
- starting assistance to young farmers;
- providing retirement status of farmers approaching elderly;
- use of the agricultural advisory services;
- investments in agricultural production;
- purchase of fixed assets of agricultural production;
- assistance to farmers in mastering introduced by the EU new standards of environmental protection, animal welfare, health care workers in the sector etc. ;
- improvement of raw materials and food quality;
- support for agricultural production in mountainous and other especially difficult regions;
- restoration of the agricultural, forestry and recreational potential in damaged areas and other.

Incarnation of new approaches to ensure rural development policy established according to the Law of EU about support for rural development (Council Regulation (EC) #1698/2005, 2005) and adapted to the Strategy for rural development (Council Regulation (EC) #144/2006, 2006).
To improve the quality and effectiveness of the implementation of rural development programs is functioning European Agricultural Fund for Rural Development (EAFRD). In order to prevent economic and social disintegration of certain areas within the Union, by the EU Commission identified priority areas for assisting rural areas through this fund, that provide support to 56 regions of the European Union (Pavlov 2006):

- ensuring competitiveness of rural areas (support and development of human potential, restructuring physical potential, improving the quality of agricultural products in accordance with the new standards, support agricultural transformation in the new EU member-states). On the financing of these measures is allocated at least 15% of the budget of EAFRD;
- environmental protection and ecological management (assistance for providing sustainable use of agricultural land, the sustainable use of forest land potential, the implementation of afforestation, development agro-forest systems). To the implementation of these actions are directed not less than 25% of the total financing within the budget of EAFRD;
- diversification of the rural economy and improving the quality of life (supporting the development of non-farm activities, tourism, SMEs, protection and management of natural resources, the revival of villages, etc.).

To ensure the envisaged target of not less than 15% of the budget EAFRD.

System of support EU agriculture enables individual countries to provide increased financial assistance or provide support for specific activities. Thus, in recent years strongly stimulated the production of environmentally friendly products. Finland declared agricultural environmental sector throughout the country as ecological industry that produces only ecological products by EU standards, causing the country received higher subsidies. Centralized Fund of EU provides enhanced support to agriculture of Greece and Ireland, which were in an extremely difficult financial situation.

In order to improve programs of agricultural support, any country of the European Union has the right annually to submit three packages of changes in the system of financial support for agriculture. This opportunity was taken advantage: Lithuania, which for 2007-2013 was allocated 2.26 billion Euros, of which 77% - from centralized EU funds and 23% of the national budget. The total amount of agricultural support for Lithuania in 2007-2013 was distributed according to the typical structure of EU in terms of four sections (Poshkus 2011).

In general, annual European Union is spending more than 40 billion Euros for the implementation of the CAP, almost 45% of its budget, while the contribution of agriculture to the gross domestic product of the EU is around 2%, while the number of working-age population of the EU engaged in this area does not exceed 6% (Betliy 2006). As a result of CAP reform, most of the subsidies are routed to activities related to the program of regional development, research and improvement of infrastructure (measures of so-called “green box”) that can be funded in any amount depending on the capabilities of countries’ budget member of the World Trade Organization (WTO) (Klimenko 2011).

4. Impact of the World Trade Organization

Regarding the impact of the WTO on the implementation of regulation policy of food safety is undoubtedly significant. Indeed, all production and trade of agricultural and food products are regulated by the WTO Agreement on Agriculture (identifies regulation features of agricultural products trade) and the Agreement on Sanitary and Phytosanitary Measures (determines use conditions in sanitary and phytosanitary controls).
Measures of agriculture state support according to WTO methodology

**Green box**
- research, training and skills development, information and consulting services;
- veterinary and phytosanitary measures, control of food safety;
- promoting sales of agricultural products, collection, processing and distribution of market information;
- improvement of infrastructure (construction of roads, power grids, reclamation facilities);
- maintenance of strategic food stocks, domestic food aid, agricultural insurance programs;
- facilitate the structural transformation of agricultural production;
- environmental protection;
- regional development programs.

**Blue box**
- measures to limit the overproduction of agricultural products (reduction in livestock numbers, acreage, etc. by providing direct compensation payments) due to budget financing.

**Yellow box**
- subsidies for livestock products and crop production, on livestock breeding, seed production, the feed;
- compensation of costs for fertilizer, pesticides, energy resources;
- price support (compensation for the difference between the purchasing and market price for agricultural products);
- providing goods and services to manufacturer at prices below market one;
- purchase of manufacturer’s goods at prices exceeding the market;
- preferential loans, debt cancellation;
- privileges for transportation of agricultural products;
- expenses of leasing fund and others.

**Figure 2.** Measures of agriculture state support according to WTO methodology

Under the terms of WTO membership, measures of state support of agriculture as the foundation of self-sufficiency of food security, which produce the greatest stimulating effect on the production of agricultural products, as well as measures for protection domestic agricultural markets, have to reduce. Traditionally, all measures of state support of agriculture generally divided into three groups or arranged in different colored boxes, «green», «blue» and «yellow» («Amber»). (Figure 2).

Regarding measures «yellow box» (domestic support), each state should oblige themselves to reduce their budget funding. In the course of determining the conditions of accession to WTO, it is calculated scores of aggregate measure of support (AMS) in the annual amount of all types of state support, which are subject to reduction commitments.

Apart from measures of general support of agriculture, there are exist strong system of foreign trade regulation and protection of domestic production, and export promotion in some regions. For example, in the EU for protection against farmers who are in the best natural conditions and with larger and efficient farms (especially in the USA) has developed a system of compensatory payments and foreign trade thresholds, are inherently sharply restricted the import of food in the West Europe and simultaneously stimulate its export. The most complex and high level of protection for domestic producers exist in countries with large differences in the natural conditions with the exporting countries. Cost of agricultural products in Japan due to adverse natural conditions is quite high and in the conditions of open market of Japanese agriculture would be suppressed for
several years, therefore embarked on no customs measures. Because of the most important agricultural product in this country is rice, there exists state-corporate monopoly on wholesale trade. Corporate mergers of this group of goods that are controlled by the Ministry of Agriculture, is the main, often sole traders and stimulate domestic productivity due to high purchase prices, creating its reserves, ensure supply of the country and allow to refuse from imports, as well in the country there are some rules that effectively prohibit its importation (Myhaylushkyn 2013). It is important that lowering the cost of agricultural products through subsidies, food is become available to the general population, respectively, state aid to agroindustrial complex simultaneously performs two interrelated objectives: ensure sustainable development of the agricultural sector of the economy; reduces tension in society, smoothing out social differences.

5. Integrated product policy

In the international scientific community actualized research on food security based on integrated product policy (IPP) (Rehfeld 2007), which is based on introducing market incentives for greening production processes and consumption throughout the life cycle of products, providing a consistent implementation of continuous improvement and involvement principles in these processes of all stakeholders with various tools of food supply chain (logistics tools, economic incentives, administrative bans, voluntary agreements ecomarketing, ecodesign, etc.).

In the Thematic Strategies on the sustainable use of natural resources is singled out waste management strategy, which is based on the «Initiative 3R»: Reduce - reduction of waste; Reuse - reuse natural resources; Re-cycle - use as secondary resources.

Regarding food security in the region, according to the ideology IPP, all processes have to greened and ecological: all food chain from production to final consumption of food and disposal of wastes that generated in the environment. As for market mechanisms of the IPP, by other words, creation conditions to encourage the production and consumption of environmentally friendly products, the relation to the food sector in the part of ecologisation of its production phase envisaged and implemented the following key activities:

- improving the distribution of information on life cycles of products;
- stimulating the use of ecodesign through appropriate guidance and disseminate best practices;
- development of legislation, which stimulates the production of environmentally friendly food, including the organic farming;
- improving the efficiency of food production;
- integration of ecological components in the process of standardization of products;
- increasing number of food and agricultural companies certified for compliance 150 9000: 2000, ISO 14000 and EMAE.

At the stage of consumption as defined from the position of ecological life cycle stresses especially the main objective of IPP is to stimulate demand for organic products, which positively affect the health of the population of the regions. To solve this problem targeted, in particular, the following measures:

- ecological certification of products and ecolabeling (mandatory and voluntary);
- distribution (with the assistance of consumer) information on environmentally friendly products;
- increasing public contracts for the production of environmentally friendly products;
- application of differentiated taxation, including reducing rates of VAT on ecolabeling products.

In result of steps IPP proportion of “green” public contracts in seven EU countries averaged 45% of total contracts, which allowed reduce CO2 emissions to 25% by the simultaneous reduction of production costs in the life cycle.
6. Monitoring food security state

Most foreign scholars are unanimous in identifying the opportunities and the need for monitoring the food security in the region and the adoption of appropriate regulatory measures on its basis. This, above all, should exercise group data on the socio-economic development. These include such important indicators as the number and composition of the population; its population in cities and districts, age and sex composition, general indicators playback; standards of living, cash income, the value of the subsistence minimum, average nominal wages, purchasing power of the average income, composition of spending on final consumption of households of different socio-economic categories, income consumption, health status (in the field, there are specific climatic conditions affecting the state of human breathing); the level of food prices; production. In addition, to this group is appropriate to attach data on climate, population diet, physical and institutional infrastructure as well as information on regional food reserves. Then, occur the collection of information about the state of the food market in the region. Timely use of this information reveals signs of a potential food crisis. This, in turn, allows the regional authorities and the public use developed protective measures, including creation of optimal reserve of food in case of emergency on the basis of scientifically based norms of consumption; a comprehensive study of the socio-economic situation of citizens in order to identify the neediest populations, priority assistance in case of crises. This can also include information about the number of companies that produce food; the ratio of prices for local and imported food products; food consumption ratio of urban and rural populations, including in individual municipalities. This system will allow increasing the effectiveness of measures to ensure food security in the region (Nikiforova 2009).

In general, by the monitoring results exist threats of occurrence of food shortages; it is appropriate to use defense mechanisms such as programs of food aid and creating food reserves. In the programs of food aid must be scientifically substantiated what amount of food is necessary for the population of each particular region in the event of an emergency. It should be noted that these programs can contribute to mitigate food crises. This assistance may be implemented through market sale of food, which will increase the market supply of food and decrease as a result of inflated market prices for its strategic species. Indeed, with 30,000 edible plants, only four: wheat, rice, maize and potatoes provide 60% of energy consumption of the world’s population. The use of such a small number of species increases the vulnerability of many agricultural systems and threatens food security and nutrition in different regions, which they can specialize.

Important in the context of food security is creation of adequate infrastructure in the regions food market, which is a “complex system that consists of a set of interrelated and interacting subsystems that have an impact on food production, given the focus on demand and merchandising food by creating conditions for a successful and effective promotion of the product from manufacturer to consumer” (Kalashnikova 2010). Thus, it is allocated the following subsystems of such infrastructure: innovation, vocational training, financial and credit services, supply, wholesale and retail brokering, logistics service, legal regulation of market participants, information and consulting service. And if the credit and financial aspects of infrastructure on local food markets have relatively universal nature in all regions, the actual physical infrastructure subsystem (training, level of automation, logistics) is largely determined by the level of socio-economic development of a particular region.

In countries with developed market economy, high degree of influence on the formation of social and production region’s infrastructure endowed regional institutions that contribute to escalating food security and the improvement of agriculture, providing:

- implementation of reclamation projects or activities of land reclamation;
- development of road transport network in the region, water supply, electricity, health care items, etc.;
- building farms and poultry farms, warehouses, agricultural, veterinary laboratories, service stations;
- creating conditions for the functioning of agricultural cooperatives, agricultural products wholesale markets, commodity exchanges food, farm products stores, vegetable stores and etc.
7. Influence of multinational corporations

It should be noted that foreign experience of formation regional food security policy is based on the understanding that proper specialization on agricultural production in the regions should largely focus on the most highly effective industries and specialize on them, taking into account climatic conditions and region’s natural resources. In this context, important factor is resource efficiency rather than mandatory requirement of achievement regional food self-sufficiency. In the process of rational international cooperation is gaining importance not «natural farming» of regions, but the degree of involvement in the international division of labor on the most beneficial for each region and state conditions. In this case, it is provided the opportunity by importing to save final consumption of all basic kinds of food products. Therefore, modern approach to understanding the problem of food security should be based not only on creating base for domestic food production, but also on the formation of the balance of domestic and imported food resources that would ensure a constant level of social stability in society.

The transition from priority of domestic food supplies to the priority of social stability in providing food security is possible and necessary. Indeed, under conditions of the international movement of capital and the emergence on regional food markets of multinational corporations complicated determination of origin areas of many food products. Today, multinational corporations, as an international form of monopoly, control about half of world industrial production, 63% of foreign trade and about 4/5 of patents and licenses for new equipment, technology and “know-how”.

Under the control of multinational corporations is 90% of the world wheat market, coffee, corn, timber, tobacco, jute and iron ore, 80% - tea, 75% - bananas, natural rubber and crude oil (Mudrak 2013). The most major representatives of these entities in the food sector include: The Coca-Cola Company, Groupe Danone, McDonald’s Corporation, PepsiCo, Kraft Foods Group, Carlsberg, Nestle, etc. Moreover, considering the use of information technology for realization of large-scale marketing campaigns, aimed at changing stereotypes, norms and habits of food consumption in a favorable context for multinational corporations, becomes more urgent question of the protection of end consumers from unscrupulous manufacturers and untested food. Such manipulations often aimed at creating a falsified image of environmental well-being and biosafety of products and contribute to the implementation in the public consciousness of consumption patterns that may be harmful to health, but satisfy the interests of producers.

8. Genetically modified products

An extremely dynamic development in all spheres of human life now requires a dynamic response to new demands, including application of new approaches to management and production. This applies both to the need to use the concept of supply chain management (Supply Chain Management), and the emergence of genetically engineered modified organisms (GMO) plant origin. In 2014, the global experience of their use has exceeded the limit of twenty years, and the areas occupied by GMO crops increased more than 100-fold, and now represent about 11% of the arable land in the world. Due to the relative scientific low level researches of short- and long-term impact of such crops on the human body when they arrive on the market carried sided examination, which may include (Gapparov 2013):

- expert analysis and assessment of data on the declared GMO (information allowing identification of the object (type, grade, transformation), information about the original parent organism and donor organism introduced genetic sequence information on the method of genetic modification, genetic structure design, levels of gene expression, information on the registration of GMOs in other countries, the results of safety evaluation (assessment compositional equivalence toxicology, allergy and other studies), which became the basis for the registration of GMOs in other countries);
- medical and biological safety assessment of GMOs (consisting of several research units, including toxicological, allergy, etc.);
- medical and genetic assessment of GMOs (check the presence of one or more synthetic genetic structures PCR);
● assessment of functional and technological properties of the GMO (analysis of the technological characteristics of the finished product, the definition of organoleptic and functional properties);
● methods for detection, identification and quantification of GMOs in food (study aimed at confirming the adequacy of these methods of instrumental and methodological basis used by institutions to monitor the circulation of GMOs and labeling of food products containing GMOs).

9. Food support programs

In the US, the largest producer of agricultural products in the world, particularly important in the food security policy is given to the state food aid programs; in particular special service for the food developed and implemented more than 15 programs of food aid to low-income population. Among these programs, there are as familiar to us “school lunch program” and the specific programs with a strong regional focus: “Distribution of food in Indian reservations” or “Food aid to the population of Puerto Rico”. Besides helping to end users of food, in the US support level of agricultural prices are approximately 50% and 21% of the income of farmers constitute direct subsidies.

In the developed countries, to ensure food security it is implemented the following support programs (Rabazanov 2013):

● farm income protection taking into account the instability in the markets and adverse weather conditions;
● crop insurance reserve funds to stabilize farm income;
● farm income protection taking into account the instability in the markets and adverse weather conditions;
● interest-free advance loans for spring field work;
● information and advisory services farms;
● mediation program to restructure debts of farmers;
● support the marketing of agricultural products, etc.

It should be stressed that in developed economies, only preferential subsidy support is not sufficient condition to realize the areas potential. Much more important is the willingness of local communities to mobilize their own, primarily human resources for the future development. Therefore, to the modern system of food safety regulation of regions should involve not only state and regional authorities in agriculture, manufacturing, trade, etc., but also self-governing and economic associations, enterprises and households. In fact, we are talking about the need to stimulate the development of civil society as an active and critical partner in regional policy of food security. The new role of regional government lies in providing interested parties with reliable and timely information about the market and provides a variety of consulting. They have spread the new legal and regulatory documents, identify the best suppliers of fuel, fertilizer inputs, and organize professional workshops and entertainment activities on the problems of Agricultural Economy etc.

Among the new elements of food strategies of industrialized countries include mass purchase or long-term lease of land (in some cases for up to 99 years) in other poorer countries for food production virtually exclusively on exports for its citizens. This guarantees them, on the one hand, a relatively quick return on investment because food is expensive, and the land - a relatively cheap, but on the other hand, states that sell or lease their land, receiving foreign investment for the development of the domestic agricultural sector, that definitely helps improve the provision of local population with food (Altukhov 2010). For example, China has reached 80% level of availability of all major groups of food products in recent years. Thus China has only 9% of global agricultural land, and the number of employees in agricultural sector of country reaches 40% of the total number of farmers in the global economy. For this country operates special state program that encourages Chinese companies to buy farmland abroad, primarily in Africa and Latin America, aimed at improving food security both in terms of production and guarantee uninterrupted supplies from abroad.
Conclusions

On the basis of conducted theoretical research we identify the main trends of regional policy ensuring food security, which now used by developed countries, in the context of closely interrelated economic, social and ecological components of food security, that are at the same time correlating aspects of sustainable regional development (Figure 3).

| MAIN TRENDS OF REGIONAL POLICY ENSURING FOOD SECURITY IN DEVELOPED COUNTRIES |
|---------------------------------|-------------------------------|-------------------|
| **Market aspect**               | **Social aspect**             | **Ecological aspect** |
| Establishing interregional and international import-export relations and operations for food | Systematic monitoring of the state of food security in the region | Promoting development eco-oriented production |
| Creation of regional food stocks and reserves of strategically important products | Ensuring balanced structure of consumption of basic types of food and stimulation of domestic demand for food | Implementation of control measures (sanitary, veterinary and phytosanitary) for the prevention of counterfeit and poor quality products in the trading network |
| Counteraction inflation fluctuations in production and consumption sector | Promote the development of infrastructure facilities for transporting, processing, storage, distribution of products in the region on the basis of logistics | Expertise and control of production and sale of genetically modified products in the region |
| Direct / indirect financial, informational and consultation support of agricultural enterprises | Target support for low-income and socially unprotected population groups of the region | Waste management of food based on the concept of 3R and improving energy- and resource efficiency |
| Formation of intraregional and interregional clusters | Stimulate agricultural employment in rural areas | Formation of ecologically oriented thinking and the development of corporate social and environmental responsibility |

Figure 3. Main trends of regional policy ensuring food security in developed countries

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SECURITY SYSTEMS: CASE OF THE CAD PROGRAM FOR CREATING 3D MODELS

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Abstract. The article describes an implementation of CAD program T-Flex for creating 3D models in scientific research at the University of Security Management in Košice. Benefits of using this program in an individual course of the study programme Management of Security Systems will be explained in this article. T-Flex program would allow the students to design and subsequently model the security systems. The acquired knowledge and skills of students in the program T-Flex can be used in their participation in research activities through diploma theses, bachelor theses, semester project, as a benefit for their future application in practice. The implementation of the individual subject using the T-Flex program together with mutual links with other courses within the study programme Management of Security Systems would result in an increase attractiveness and effectiveness.

Keywords: security systems, 3D modelling, program T-flex, scientific research


JEL Classifications: A2

1. Introduction

In addressing the challenges and problems associated with civil security within security education of students it is important for a researcher to focus on technical matters as well, bringing space and imagination into them. These skills and abilities represent a solid and logical basis for technical studies of security systems. Currently, designing and modelling of security systems using two-dimensional drawing programs have gradually been replaced by a new generation of programs, a new way of designing, represented by parametric modelling in 3D. A fully functional program, enabling professional creation of parametric 3D models of security systems, is T-Flex CAD program.

The quality and content of higher education is currently a frequently discussed issue in society. For students, university is not only a source of information and knowledge, but through university teachers provides them with skills and treatment of theoretical methods that help students classify, process and adequately apply in an effective manner the acquired information in practice. In order to meet the main objective of university study, namely the real usability of the acquired knowledge in practice, there should be a change in course content. Durability of the acquired knowledge is affected by various factors and, in certain circumstances it may be extended. Only the acquired information, which has previously been sufficiently understood by the student
and processed in his consciousness, can become student’s permanent property. In an effort to educate as many graduates as possible to approach the ideal graduate profile it is necessary that the learning process was optimal, rational and efficient. The teaching process has its own set of goals that must be achieved in due time. This is associated with the energy expended by both the teacher and the student, from which then arise adequate results of teaching activities in relation to time and energy. To make the learning process effective and meet its objectives, the teacher must use teaching methods, material resources, apply the principles of teaching, create organizational forms and, finally, apply interdisciplinary relations, as the acquired knowledge is without connections and contexts fragmented (Vacková, at. al., 2016).

In the present time, it is very common to use Electronical Education at High schools and at the Universities of all types (Drotárová, at. al., 2016). The aim of this article is to point out the adequacy of using the T-Flex CAD in the teaching of the subjects at the University of Security Management in Košice, as this way students may acquire the skills reflecting the requirements of modern times, the use of computer technology in practice.

The next aim is designing 3D models of security assemblies in the T-Flex CAD program that can help students in subjects such as Elasticity and Strength, Statics, Basics of Mechanical Engineering, Fundamentals of Structural Engineering, Descriptive Geometry, which are taught in the Management of Security Systems study programme at the University of Security Management in Košice. These subjects are based on natural laws and allow the development of analytical and logical thinking necessary for understanding of other technical and science subjects. They are a solid and logical basis of security systems technical studies.

New quality and higher efficiency of designing security systems comes in the form of designing and manufacturing assisted by computer technology. Capturing the new trends in vocational schools is important from the point of view of preparing students to use computer technology in practice. The requirements put on teachers are thus high due to the combination of 2 aspects of human activity. They are designing, calculating and controlling of components, mechanisms and complete machines on one hand and drawing using computer technology on the other (Kováčová and Klimo, 2013).

Constantly changing social needs, but also the continuous development of science and technology, with which it is most closely related to the emergence of new security risks and threats dynamically affect the entire education system (Kavan, at.al., 2015; Tvaronavičienė et al., 2015; Branten, Purju 2015; Matetskaya, 2015). The role of the learning process is not just verbal learning of the curriculum, but also learning about real relationships, students learn to understand, be able to apply such knowledge, analyse it, synthesize, evaluate and predict. Equally can be understood the role of the teaching process in security education. Graduates of the study programme Management of Security Systems are able to succeed on the labour market in all sectors of security at various stages of management. The security issue of an organization is interdisciplinary matter. When we talk about the security of the organization we mean the implementation of permanent set of security measures which are used for the protection of people in the organization and all tangible and intangible assets related to its business (Lošonczi and Bruna, 2011; Samašonok et al., 2016; Raudeliūnienė et al. 2016; Laužikas et al. 2015).

The goal of safety education is to prepare a security group of experts for the management of institutions of different sizes and varying degrees of complexity (Kavan, 2015). Security education at the University of Security Management in Košice focuses on the development of students’ knowledge and skills linked with security, increasing the qualifications and expertise of graduates, preparing them to deal with risk, emergency and crisis phenomena in various fields of security (civil, economic, environmental, technical and technological, logistical, etc.). This is possible due to a wide range of subjects that help produce a graduate with profound knowledge of these areas of security. One of these areas is a technical area where students acquire technical knowledge, the ability to apply security aspects of management in relation to technological and technical problems, to manage the operation of technical systems in manufacturing and business companies. The student is able to perform the profession of security technician with the focus on manufacturing and operational processes of selected industries and services, apply himself/herself as an engineer in the areas requiring the technical scope of knowledge and creativity in general, the ability to make decisions and solve technical and managerial problems (Prada, at. al., 2013).
Currently, there are a large number of software packages that are very useful not only in the planning process but also in designing, constructing and, finally, in analysing security systems. It is the involvement of computer support in the process of designing which allows us to take advantage of new progressive technologies and methodologies to achieve the desired goal. This lies in creating a sophisticated security system in its substance interesting not only for its very specific applications but for its more massive application as well. Finally, using appropriate software tools it is possible to achieve this way significant savings in funds earmarked for the implementation of the project. Specific funds can be saved by the appropriate technical analysis of the characteristics of the given device such as a simulation of mechanical load, depreciation, verification of the dynamic properties as well as reliability in a particular environment. Simulating the effects of various fields, loads and dynamic influences we can get some idea about the behaviour of the device in a specific situation. This allows us to predict the possible behaviour of the device in a certain time frame in which it will actively be used (Prada, et. al., 2013).

2. Characteristics of the T-Flex program

T-Flex is a new 3D CAD system affordable on the Czech and Slovak market. T-Flex CAD is a fully functional program that enables the professional creation of parametric 3D models, including the creation of spaces and drawings. In the Czech Republic, the program is distributed by SoliCAD, Ltd.

T-flex is a top comprehensive CAD/CAM/CAE/PDM system designed especially for professional work. The T-Flex system is built on the basis of fully cooperating models whose common denominator is a parametric and surfacing modeller, T-flex CAD. With the T-Flex program ideas can be effectively transferred to the stage of production documentation. The T-Flex contains a wide range of highly innovative parametric modelling tools that allow designers to quickly create basic elements simply by adding conventional forms – holes, rounding, chamfering or a more complex geometry – deflections, parametric curves, screw shapes, etc.

T-flex is a product of the Russian company Top Systems, which has been developing the program since 1989. That year it was founded by seven graduates of the Moscow Technical University, near where the company resides till today. T-flex software is made up of several parts, as follows – T-Flex CAD – basic 3D CAD program, T - flex Analysis – supplement for T-Flex CAD, T - flex Dynamics – supplement for T-Flex CAD, T-Flex Technical Support – technical support, including updates.

T-flex Analysis offers a wide range of specialized analysis tools that help users to virtually test and analyse complex assemblies by using the finite element method for the design of static, frequency, buckling, thermal, fatigue and other analyses and optimizations. T-flex Analysis shows how the design will behave in real life conditions before it is made. Users of T-Flex Analysis can carry out the analysis of structures, simulation and optimization directly in a T-Flex. Quick and efficient analysis often reveals hidden solutions and helps users to better understand the nature of the product. Whether it is used in mechanical, electrical, aerospace, transport, energy, medical or construction industries, T-flex Analysis can help shorten development time, reduce the cost of testing, improve product quality, and speed up market.

Static analysis options allow the users of the program to perform the analysis of voltage parts and assemblies with varying load. Static studies calculate displacements, reaction forces, deformation, stress and distribution of safety factors. Static analysis can help in avoiding a rupture caused by high stress. Different ways of loading and boundary conditions can be defined, including force, pressure, tension, centrifugal forces, lifting capacity, moments, prescribed displacements, temperatures, etc.

Frequency analysis determines the natural frequencies and mode shape of components. It can determine whether the component will resonate at the frequency of the connected-driven devices, e.g. engine. Typical are the designs of speakers, aircraft structures, bridges, construction equipment, analysis of robotic systems and other devices.

The analysis of critical load with respect to buckling verifies the geometric stability of the model, notably under axial load. It helps to avoid the loss of stability that results in sudden large deformations, which in normal use
of the products can be catastrophic. Buckling analysis detects the ultimate load for buckling and is commonly used in the construction of car frames, columns, foundations, structures, electrical poles, determination of safety coefficients, etc.

Repeated loading and unloading weakens constructions over time, even if the induced voltages are considerably smaller than the allowed limit load. Fatigue analysis is essential for products such as steel structures or beams, which may mechanically fail under cyclic or other load that never reaches values sufficient for breaking the single load. T-Flex analysis simulates fatigue failure and the application of cyclic loading allows determining the fatigue strength to design product life cycle and thus ensure the safety of the operation.

T-Flex Dynamics – is a versatile add-on application for simulating the movement, which is used to study the physical behaviour of the design without leaving the T-Flex CAD environment. T-Flex Dynamics software is used for virtual prototyping. It assures its user that his designs will work before he builds them (Klimo, at. al., 2013).

3. Creating 3D models using T-Flex CAD program

Currently, it is common that technical documentation is fabricated by means of computer technology, and mainly 2D programs are used. A three-dimensional model arises in the minds of designers and a two-dimensional view of the model or its cross-section gets displayed on the screen. This approach is typical for technical and vocational education. However, within a few years 2D programs will be less used and companies will prefer a new generation of programs, and a new method of designing, parametric modelling in 3D. This parametric 3D modelling is possible due to the T-Flex CAD program (Fig. 1).

New quality and higher efficiency of designing have come in the form of designing (CAD) and manufacturing (CAM), computer assisted (Fig. 4). Computer has become a substitute for the drawing board and help in the form of computer-assisted production. In practice, the 2D drafting has gradually been replaced by 3D parametric modelling. First of all, the sketch is drawn here in a similar manner as in 2D. Then, the model of a component is created, mainly by rotation and pulling. It is a very interesting way of work, which does not result in a drawing, but a three-dimensional parametric model of a component. The drawing itself, either its view or cross-section, is created automatically, it only needs to be dimensioned (Fig. 2, 3).
Fig. 2 Drawing of components created using T-Flex CAD program

Fig. 3 Drawing of components created using T-Flex CAD program
Any changes in the sketch are automatically reflected in the model and the drawing. These new trends should be captured in technical and vocational schools, another challenging but interesting work for teachers (Klimo, at. al., 2013).

Fig. 4 Examples of T-Flex program design

Summary and conclusions

Digital world is a natural part of the daily life of university students nowadays. New hardware and software school equipment, such as interactive whiteboards, voting machines, laptops and tablets, but also freely available educational software, raise questions about their effective use in the educational process (Vacková, at. al., 2016). Experience shows that the educational research as well as in the area of theory of teaching must move in this direction. Knowledge is part of the flow of information acquired by students every day, further processed, and possessed by them. The role of university teachers is to provide students with the knowledge that can be used in practice after graduation.

When facing the challenges of security, education and training of security services personnel and personnel at different levels of security and management as well as managing workers on which high demands for knowledge are placed, are important aspects. Within university education, improvement of the situation in given area can be achieved by increasing of security awareness of people coming out of school to practice, and by deepening of their knowledge and skills associated with security, by improving qualifications and skills of graduates and preparing them to deal with risk, emergency and crisis phenomena in various aspects of security (civil, economic, environmental, technical and technological, logistical etc.).

A security education system needs to be aimed in such a way that security personnel will be able to gain and acquire knowledge and methods skills on basis of which they will be able to analyse security environment and its factors in relation to various objects. Personnel should also be able to identify and evaluate safety risks and threats and predict their development, determine the procedures and measures of management, security risks and threats, planning and organizing risk management measures, security and crisis management in accordance to resources and capacities available, and design and manage complex security systems. Deficiencies emerg-
ing in security education prevent the effective investigation of professional and societal aspects of security problems, by which the basic cognitive element for the effective management of security systems is limited (Kováčová and Vacková, 2015).

The main effort is to implement the T-Flex program in the teaching process of the study programme Management of Security Systems at the University of Security Management in Košice, as a separate subject based on this design program, which would allow students to design and then comprehensively model security systems with enhanced parametric 2D and 3D. Students will learn the basic capabilities of computer-assisted design. They will become familiar with the working environment of software for 3D modelling of security systems components and learn the basic procedures for modelling of simple 3D objects. Students will be able to use the acquired knowledge and skills when writing their diploma theses, bachelor theses, semester projects, and as a prerequisite for their future application in practice. The introduction of a separate subject with the use of designing in the T-Flex program would result in an increase in the attractiveness and effectiveness of the teaching with links to other subjects within the study programme Management of Security Systems.

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PROFESSIONAL ACTIVITY MOTIVES OF PRIVATE SECURITY COMPANY EMPLOYEES FOR SUSTAINABLE DEVELOPMENT

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Abstract. The present study is devoted to researching the peculiarities of the hierarchy of motives in the structure of professional motivation as a sign of success of the professional activity of private security company employees in Latvia. C. Zamfir’s Work Motivation Inventory (WMI) was applied as the research method. The results have revealed that the motives directly related to professional activity do not have a leading function. The presence of the authoritarian syndrome as an axiological political phenomenon, which serves the regulating function of company employee behaviour, indicates the existence of an internal crisis and the necessity of changes in the operation of the companies. It is stated that the combination of motives with high ranks in the structure of professional motivation can be viewed as a prognostic factor of sustainability/unsustainability of development of the company as a whole.

Keywords: authoritarian syndrome, professional motivation, security company, sustainable development


JEL Classifications: J01; J24; O10

1. Introduction

The issues of professional competence and self-development techniques are studied in different scientific and applied fields of life. There exist various approaches to assessment of competence in professional activity. Today there are enough opportunities for professional growth: if necessary, one can continue education or acquire an additional qualification. Competence in the professional activity is often declared as a process of cooperation and collaboration of the employer and the employees. However in reality, the employer controls, explains, gives instructions and forces (our emphasis) the employees to fulfil their professional obligations stated in the work agreement. The employees quite often passively obey the requirements of the management without going deep into solving the problem at hand and without specifying the way of completing the task, i.e. the professional activity has a formal nature – the manager processes and transmits information, but the subordinate perceives, memorizes, and produces the information on demand (Dessler 2014).

Sustainable development of professionally competent specialists is possible when there is a harmonious relationship among the individual, the society, and nature: while satisfying the needs of today, we must search for a compromise for satisfying the needs of future generations (Brundtland 1987). A compromise between the
present and the future is coordination of the modern needs of society for solving social and economic issues in the future. The future well-being is oriented at behaviour, at the changing value system, and at the basic needs of the modern human being. Future priorities must be viewed only in the context of the qualitative change of the person’s attitude to their professional activity (Derkach et al. 2000).

In our view, for social and economic achievements, for preserving the resources and culture of society, an important personality component for sustainable development is innovative and positive thinking of the professionally competent specialist (Lace et al. 2015; Oganisiana et al. 2015; Njaramba et al. 2015; Rezk et al. 2016; Samašonok et al. 2016; Prakapavičiūtė, Korsakiene 2016; Raudeliūnienė et al. 2016; Dalati 2016; Fuschi, Tvaronavičienė 2016). People differ in their linguistic affiliation, education, previous experience, and worldview. Sustainable development is determined by harmonious relationships in society, by historical and cultural heritage and awareness of it, and by preserving ethnic identity. In the constantly changing world, the human being is only one form of the joint life cycle. Everyone needs group affiliation and professional affiliation. The success of professional activity for sustainable development is determined by the special process of socialization of the person and the possibility of self-realization, and promotes the improvement of relationships in the group and tolerance for the cultural values of other people. In this regard it is necessary to emphasize the sector of private entrepreneurship as the widest field for the possibility of realization of ideas for sustainable development (Parra 2013).

Today, specialists of private security company services are in demand. Modern effective protection is impossible without the application of a complex of technical aids: alarms, different sensors, video surveillance, etc. Apart from technical means and legal knowledge, the employees must possess the communicative competence in the system “person-to-person”. Good teamwork and cooperation with professional colleagues in extreme situations is necessary. The clients of security company employees expect protection of their interests, business, property, separate premises or a complex of the enterprise, i.e. real estate property as a whole. Private security company service specialists undergo special training, and such personal qualities as responsibility, excellent physical fitness, striving for personal development and self-education are required.

Professional personality development is closely related to achievement of the peak of professionalism in one’s professional development. Professional development implies personal development in the process of choosing a profession, acquiring professional education, and qualitative and productive fulfillment of professional obligations. Both in the process of professional education and in the process of completing the professional activities, a very important factor is the person’s inner incentive for work – their motivation. Motivation directs the person, drives them towards the goal, and promotes achievement of the highest level of personal and professional development.

True professionalism is always identified with strong and sustained motivational orientation towards activity fulfilment and achievement of results. A certain motivational basis, on which a person can achieve heights in their professional development, should exist at any age (Pinder 2008).

Motivation drives people to be active and professionally competent, and to accurately fulfil work requirements. Aims of the professional activity and behavioural peculiarities of employees are determined by motives (Hackman and Oldham 1980).

After about five years of working in the profession, employees quite often start experiencing the process of stagnation: their health declines, activity level diminishes, signs of depression and emotional burnout appear (Vodopyanova and Starchenkova 2009). The choice of a profession corresponds to the desired lifestyle provided by the social situation; however motivation for sustainable personal and professional development comes from within a person. The desire of the employee to be professionally competent is one of the components of professional activity, whereas the structure of professional motivation is an important component of professionalism. Professional activity should be built so that, first of all, the need for professional competence is developed. Without such a need, professionalism does not form; only needs make a person put forward aims and objectives for their achievement, and then perform the corresponding professional activity. Therefore profes-
sional activity should be built in such a way that the need to be a professionally competent specialist becomes foremost. If the social situation does not promote satisfaction of needs, it causes intrinsic dissonance (Leontiev 2003), which can launch the mechanism of search activity in another professional sphere.

The maximum effect in the professional activity can only be achieved if the employees possess intrinsic incentive for successful fulfilment of their professional obligations. In other words, the hierarchy of motives in the structure of motivation determines the activity level of the subject in acquisition of professional competences. At the same time, it is known that any professional activity is polymotivated, i.e. it is prompted by more than one motive (Leontiev 2003).

Among these there are always the dominating motives at the top of the hierarchical structure of the individual’s motivational sphere, which determine the orientation of the professional activity and its results. Each motive has a specific place in the hierarchy of motives where it fulfils the prompting function. However, in every specific case motivation is ambiguous – it depends on many objective factors; however the fundamental hierarchical core must be sustainable because the level of formation of motivation depends on the development of the individual as a whole: their life stance, beliefs, personal orientation, and professional competence. In the motivation system of professional activity, intrinsic and extrinsic motives are intertwined. Intrinsic motives include self-realization, personal development, and growth of professional competence, whereas extrinsic motives are financial reward, prestige, and work as behaviour imposed by social status (Heckhausen and Heckhausen 2010).

One of the possible conditions for sustainable development of a professionally competent individual is increasing the share of intrinsic motivation in the professional activity. In the process of development of intrinsic motivation there is a shift of the extrinsic motive towards the aim of the professional activity. We believe that the dynamics of the hierarchy of motives can be viewed as one of the factors in the assessment of sustainable development of professional competence of private security company employees.

Therefore the hierarchy of motives in the motivation structure for the professional activity of private security company employees is studied as a success factor in the professional activity of employees and the sustainable development of an enterprise as a whole.

2. General background and methods of the research

The hypothesis put forward in the present study on the peculiarities of the hierarchy of motives in the structure of professional activity of employees with different length of employment in private security companies is based on the following research principles:
- The respondent survey is anonymous;
- The respondents were informed that there is no right or wrong answer;
- All the survey participants were offered a personal consultation about the results of the survey if necessary;
- Respecting the wish of the employers, the names and locations of the private security companies are not mentioned and the employee work responsibilities are not specified.

The survey was conducted in two stages: determining the hierarchy of motives in the motivation structure of the professional activity and studying the correlation of motives in the professional activity motivation structure with the length of employment of the private security company employees.

Participants

The survey participants were 80 employees of private security companies in Latvia regardless of gender or age.

For the study of peculiarities of the hierarchy of motives in the motivation structure of the professional activity, the respondents were divided into four arbitrary groups of 20 people according to their length of employment in private security companies. The first group consisted of respondents with less than 5 years of employment in
the security service field; the second group – respondents with the employment length from 5 to 10 years; the third group – respondents with the employment length from 10 to 15 years; the fourth group – respondents with the employment length of more than 15 years.

Methods

The study participants were asked to fill in Catalin Zamfir’s (1983) Work Motivation Inventory (WMI) in Yevgeny Ilyin’s (2011) modification. According to WMI, work activity motivation structure consists of 7 motives combined into the following three motivational complexes: Intrinsic Motivation (IM) – satisfaction gained from the process and the result of work and an opportunity for self-realization; Extrinsic Positive Motivation (EPM) – salary, aspiration for career growth and orientation to prestige and respect of other people (social status); Extrinsic Negative Motivation (ENM) – avoiding criticism from colleagues and management (relationship with administration and colleagues), avoiding possible troubles or punishment. The employees assessed the degree of importance of each motive on a 5-point scale from 1 (the least important) to 5 (the most important).

The quantitative data obtained for each motive were statistically processed to calculate the mean value for each motive. Then the leading motives with the highest rank in the motivation structure of the professional activity were determined for each employee, which were then averaged and summarized in groups according to the length of employment.

3. Results and Interpretation

We suggest interpreting propositions and motives in the motivation structure of professional activity by Zamfir (1983) in relation to the following categories of motives:

- broad social motives – avoiding criticism from colleagues and management (relationship with administration and colleagues), aspiration for career growth;
- narrow personal motives – salary and orientation to prestige and respect of other people (social status);
- motives of direct professional activity – self-realization and satisfaction gained from the process and the result of work (work satisfaction);
- avoiding troubles – individual’s characteristic motivational preference.

The leading places in the motivation structure of professional activity of private security company employees with the length of employment less than 5 years are occupied by the motives “self-realization”, “work satisfaction”, and “avoiding troubles”. The motive “relationship with administration and colleagues” received the lowest rank.

For employees with the employment length from 5 to 10 years, the motives “social status” and “avoiding troubles” are at the top of the hierarchy of motives. The motives “relationship with administration and colleagues” and “career growth” have little importance.

In the motivation structure of professional activity of private security company employees with the employment length from 10 to 15 years, the first and second place is occupied by the motives «work satisfaction» and “avoiding troubles”, followed by the motive “social status”, but the motive “career growth” is at the bottom of the hierarchy.

For the employees who have been working in the system of private security companies for more than 15 years, the motive “avoiding troubles” takes the first place, followed by the motives “work satisfaction”, “social status”, and “salary”. It was established that the motives “relationship with administration and colleagues”, and “career growth” occupy the last places in the motivation structure of professional activity.

The obtained hierarchy of motives in the motivation structure of professional activity of private security company employees according to length of employment is reflected in Figure 1.
The results indicate that in the motivation structure of professional activity of private security company employees, for the respondents of all four arbitrarily distinguished groups, the highest places are occupied by the motives of direct professional activity – “self-realization” and “work satisfaction”, as well as the motive “avoiding troubles” distinguished by Ilyin (2011) as an individual’s characteristic motivational preference. According to Zamfir (1983), the combination of motives in which extrinsic negative motivation (ENM) dominates extrinsic positive and intrinsic motives is the worst motivational complex.

It can be assumed that such a result reflects the positive image of a professional employee expected or desired by the management, as well as a desire to exhibit socially approved behaviour (Ajzen 1991). In our view, the motives of professional activity are not expressed in the behaviour of the employees because the motive “avoiding troubles” has a significant place in the hierarchy. Such combination of motives is possible in a situation where in the process of achieving the result the employees accentuate the possibility of failure. In other words, the fear of losing the job determines the desire of employees to have a positive business relationship with the employer, to be diligent workers, to precisely fulfil their work duties, and to cooperate with colleagues. Unfortunately, the level of emotional instability of the employee personality can also rise because the need for achievement is unstable, which in turn leads to a faster onset of professional burnout (Boiko 2008).

A dominating combination of the three motives “avoiding troubles”, “work satisfaction” and “self-realization” in the motivation structure of professional activity of private security company employees usually indicates authoritarianism in the relationship system “superior – subordinate” (Deineka 1999). Satisfaction gained from
the process of work and from achievement of a positive result directly depends on praise or reproach by the management and on criticism from colleagues, which can lead to perfectionism and workaholism (Lafferty and Lafferty 1997).

However, for all four groups of security company employees with different length of employment, the motive “relationship with administration and colleagues” has the last place in the hierarchy of motives. Such state of affairs can be explained by the fact that career growth is important to the employees, which provides not so much a promotion as an increase of the financial reward. In our view, for the employees, financial well-being is not related to professional growth and mental activity, with learning and self-improvement.

To reveal possible presence of significant correlations, the Pearson linear correlation analysis was applied. Based on the obtained results of the correlation analysis, it can be stated that no statistically significant correlation of the motives “career growth”, “relationship with administration and colleagues”, “work satisfaction”, “social status”, and “avoiding troubles” was found with the employment length less than 15 years in the system of private security companies. A statistically significant correlation was found among the motivational profiles in the group of employees whose length of employment in the system of private security companies is greater than 15 years. The obtained results are presented in Table 1.

### Table 1. Correlation among motivational profiles in the group of employees whose length of employment exceeds 15 years

<table>
<thead>
<tr>
<th>Motives</th>
<th>Relationship with administration and colleagues</th>
<th>Career growth</th>
<th>Salary</th>
<th>Social status</th>
<th>Avoiding troubles</th>
<th>Self-realization</th>
<th>Work satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>The employment length more than 15 years</td>
<td>.025</td>
<td>.002</td>
<td>.429*</td>
<td>-.003</td>
<td>.088</td>
<td>-.325*</td>
<td>-.163</td>
</tr>
</tbody>
</table>

**Note:** * Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed)

As can be seen from Table 1, the motive of financial well-being depends on the length of employment: the greater the length of employment, the more significant and important the motive „salary” becomes. The motive “self-realization” also depends on the length of employment: the greater the length of employment, the less significant becomes the motive „self-realization”.

### 4. Discussion

Many factors influence the sustainable development of economy; moreover, the variation of these factors can reflect the specific character of economic subsectors (Tvaronavičienė et al. 2014).

Sustainable development in the paradigm framework of the present study is the orientation of the scientific and technical development of the company where development of personality and institutional changes are in accordance with each other and strengthen the existing and future potential for satisfying personal and professional needs and aspirations of the staff. On the one hand, we are talking about ensuring the quality of life of private security company employees, on the other, about continuous self-sufficient development of the organization. Based on the broadening of personal choice as the most important value, the concept of sustainable development implies that the person should participate in the processes that form their life sphere, contribute to making and realizing decisions, and control the execution of those decisions (Pereira et al. 2014).

However, it is necessary to note the existence of such an axiological political phenomenon as the “authoritarian syndrome”, which becomes activated in conditions of economic crisis. It is one of the components of the political culture of transitional societies (Adorno 2012).

Axiological aspects are brought to the forefront; hence the cultivation of the values of power, authority, and
hierarchy at the heart of society and institutional activity. Extrinsic instrumental values are safety, minimization of effort, and social security. Intrinsic values are professional development, social reputation, vocation, self-development, and self-assertion. The authoritarian syndrome responds to institutional changes and depends on socioeconomic and cultural political characteristics. The authoritarian syndrome as a system creates and regulates the actions of the company management. The regulating side is realized through norms and values that limit behaviour of employees, whereas the creative side fills the actions of management with substance, allowing employees to understand the situation and to correlate their actions and expectations with others (Karmin 2000).

Stability and prevalence of the authoritarian syndrome in transforming societies is usually explained as the consequence of the following: the individual gives preference to instrumental instead of intrinsic values; the values and norms of the group to which the individual belongs dominate. Usually in such societies the power distance is high, and employees strive for dependence or interdependence (Hofstede 2010).

The social component of sustainability of development is oriented at the person and directed at preserving the stability of social and cultural systems, which includes decreasing the number of destructive conflicts among people. A significant role is assigned to interpersonal interaction of employees and to the ability to adapt to colleagues (Lans et al. 2014). Thus in the situation of the private security companies that we studied, the achievement of social and professional justice is important both in each arbitrarily distinguished group with different lengths of employment and in „intergenerational” justice. Lack of sustainability in the social component and authoritarian management of the organization creates psychological instability among employees.

We believe that the characteristics of the hierarchy of motives in the professional motivation structure of employees are the key to understanding the direction of development of the company as a whole and sustainability in particular. Later on, understanding of how the combination of personal values and group norms influences employee behaviour will allow explaining how the combination of personal and group factors functions for sustainable development of private security companies. Furthermore, there exists the so-called integral approach of the concept of private entrepreneurship, which relates intrinsic personal qualities of employees to the degree of their acceptance of extrinsic norms and circumstances to make use of the changes that appear from outside (Raudeliūnienė et al. 2014).

The motives of professional activity are closely related to emotions. Special attention should be given to formation of positive emotions, which encourage the activity of private security company employees. The activity process should evoke positive feelings, which after a while can grow into a lasting feeling of joy, into a sense of pleasure from completed work. The employees will gain confidence in their own abilities and the opportunity to know their true worth. However the process of motivation of professional activity cannot be built on the hedonistic feeling alone. Evoking positive emotions creates the background and possibility for “shift of the extrinsic motive towards the aim of the professional activity”. A prerequisite for the “shift of the extrinsic motive towards the aim of the professional activity” is a deliberate desire for self-improvement and extending ones professional knowledge.

In conclusion it must be noted that the motives related directly to professional activity have not reached the level allocated to them in the multilevel structure of professional motivation. However, the hierarchy of motives is not a constant value – it changes and develops, acquiring different substance. To achieve sustainability in development, the modern private company will have to form sufficient sustainability competences of their management through knowledge and understanding that social interaction enables the connection of personal ideas, views, and feelings of different people (Wals and Kieft 2010).

Thereby creation of a more effective decision making system is promoted, which takes into account the previous experience of employees and encourages diversity of opinions in decision making situations (Galloway 2009).
Therefore it is necessary to stimulate and develop the motives related to self-improvement and self-realization in the professional activity.

Conclusions

The results of the study of the peculiarities of the hierarchy of motives in the structure of professional activity of private security company employees show that the motives directly related to professional activity for satisfying the need for self-realization in this particular activity do not have a leading function. These motives have not superseded the broad social motives of private security company employees but have been pushed to background by narrow personal motives.

The authoritarian syndrome, which serves the regulating function of company employee behaviour, indicates the necessity of organizational changes in the operation of private security companies. The existing situation can be interpreted as a favourable opportunity for adopting changes that promote sustainable development.

The variation of motives in the structure of professional motivation of private security company employees can be used as a factor for predicting the success of the professional activity of employees and sustainability of development of the company as a whole.

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ASSESSMENT OF PARTNERSHIP DEVELOPMENT IN CROSS-BORDER REGIONS’ INNOVATION SYSTEMS (LATVIA-LITHUANIA-BELARUS)

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Abstract. The article is devoted to the research and assessment of the development of the triple partnership between the participants of innovation systems – universities, business, and government in the Latvia-Lithuania-Belarus cross-border region which consists of Latvia’s regions (Latgale region), Lithuania’s regions (Vilnius region, Alytus region, Utena region, Panevezys region, Kaunas region), Belarus’s regions (Vitebsk region, Grodno region, Minsk region, Mogilev region). The lack of attention to the above problems typical of this cross-border region determined the relevance of the research. Innovations are one of the key factors both on the macro-level and on the micro-level that influence the sustainable economic development of the region as well as the innovation potential of the enterprise. The stable development and efficient function of the territorial innovation system is the main condition for this. The study is based on a survey of 620 entrepreneurs from small and medium-sized businesses in the cross-border region.

Keywords: innovations, Triple Helix Model, cross-border region, sustainable development


JEL Classification: O30; O43; R11.

1. Introduction

Scientific and technological progress plays a leading role in a region’s transition to sustainable development, as the economy of any region is a system which is open to the penetration of technological, scientific, and information resources. The advances of scientific and technological progress encourage sustainable development as well as a qualitative change in the region’s economy, which result in the changes in the production structure, whereas not all scientific and technological innovations are in demand.

According to the classification of development stages in economy provided by the World Economic Forum’s methodology, it is social innovation which plays a significant role in the countries with the “efficient” stage of their economy development where the labour productivity and efficiency of the use of all types of resources are the main factors for sustainable development (World Economic Forum 2015). Social innovation contributes
to the improvement of the quality of life of citizens and national competitiveness (Dobele, Grinberga-Zalite, Kelle 2015). Social agents such as government, the market, universities and organizations are interested in the creation of social innovation (Phillis, Deiglmeier & Miller 2008; Balkiene 2013). For the countries at a higher “innovation” stage of development, the role of technological innovation increases (Boronenko et al. 2011; Oganisjana, Surikova 2015; Tvaronavičienė, Černevičiūtė 2015).

For the first time scientists started studying the influence of scientific and technological progress on the process of production and economy in the 18th century during the first industrial revolution, when the invention of a steam engine and textile worktable promoted the development of cloth manufacture. According to W. Miller and L. Morris’s classification, the interaction between the theory of innovation and practice in the 20th century is divided into 4 R&D generation schemes depending on the number of participants of a partnership. The first generation schemes (1900 – 1950) are based on the work of scientists and researchers, in the second generation schemes (1950 – 1970) industrial enterprises appear alongside with the partners from the academic environment, in the third generation schemes (1970 – 1990) market researchers who forecast the demand in the future are involved, and, finally, in the fourth generation schemes (1990 – nowadays) a wider range of partners are involved – state institutions, universities, consumers, customers (Miller, Langdon, 1999). A triple partnership between universities, enterprises and government – the so called Triple Helix Model is the most popular in the fourth generation schemes (Etzkowitz 2008). In the last decades there has increased a scientific interest in the problem of cooperation between these social agents, which is proved by an increasing level of research in this field. For example, according to the outcomes of the research “High Schools in the Regions: Interaction between Knowledge and Practice”, the lack of communication between social agents, the lack of common interests, motivation, and common suggestions for the regional development were mentioned as the reasons for the low efficiency of cooperation between Daugavpils University, entrepreneurs and municipalities in Latgale region (Daugavpils University 2011). Recently, the EU-funded projects or projects supported by other funds have become a relatively popular type of university-industry-government relations, as well as university-industry relations or university-government relations (Boronenko et al. 2011; Branten, Purju 2015).

Sustainable development is a model of forward movement which enables the satisfaction of subsistence needs for the present generation without depriving future generations of this opportunity (Miller, Langdon 1999). Nowadays, innovations are a key element of the regional sustainable development (Tvaronavičienė 2014; Volkova 2014; Rosha, Lase 2015, Travkina, Tvaronavičienė 2015), as well as a significant factor of enterprises’ innovation potential (Lavrinenko, Ruža, Ohotina 2015; Raisiene 2012). In the EU development strategy “Europe 2020” sustainable development is one of the goals alongside with the smart, and inclusive growth. The tasks which are potentially related to innovation are mentioned among the tasks for the achievement of these goals – the flagship initiatives on the innovation union, on resource efficiency, and on industrial policy (European Commission 2010). The introduction of innovations promotes accelerating the processes of economic growth as well as more efficiently using already existing resources, which has a positive influence on ecological situation in the country and allows decreasing the load on environment without losses in the volumes of national production (Gjoski 2011).

The aim of the article is to assess the development of partnership in innovation systems in the Latvia-Lithuania-Belarus cross-border region. The research was carried out within the framework of the 2014 project “The Establishment of the United Entrepreneurship Support and Networking System for the Sustainable Latvia, Lithuania and Belarus Cross Border Cooperation” (B2B) funded by the cross-border cooperation programme Latvia-Lithuania-Belarus “European Neighbourhood and Partnership Instrument 2007–2013”.

2. Methodology

The main concept of innovations in post-industrial society is the Triple Helix Model. The concept of the Triple Helix Model or triple relationship (universities-industry-government) was developed in the 1990s by Henry Etzkowitz (Stanford University) and Loet Leydesdorff (Amsterdam University). This partnership is a hybrid social construction, an apposition of spiral structures, similar to DNA molecules. The triple partnership adapts
well to changes in the external environment (Etzkowitz and Leydesdorff, 1995). In the 2000s this theory was used as a basis for national innovation systems in a number of countries from Scandinavia to Japan (OECD, 2007). It has also been mentioned in the EU strategic documents as a new approach to integration processes and creation of a common knowledge market. The Triple Helix Model adequately identifies and measures the relationships of the participants of an innovation system – government, business and universities. There is no example in the world where the national innovation system would function effectively beyond the principles of the triple helix, where universities would not be in the centre of these events (Lavrinenko et al. 2015).

![Triple Helix Model](source: Inzelt, 2004; Katz, J.S., Martin, B.R. 1997.)

The levels and ways of relationships between universities, government and industries can be as following (Inzelt, 2004):

1. The individual level, the way of relationships - isolated

![Individual Level](source: Inzelt, 2004; Katz, J.S., Martin, B.R. 1997.)

The individual level of relationships between universities, government and industries with an isolated way of relationships can be characterized by the presence of special consultations of companies’ specialists at local authorities, regular (informal) contacts between companies’ employees and representatives of local authorities within professional associations, conferences and seminars, forums, training provided by specialists from municipalities for companies’ employees, special consultations for companies’ specialists at universities, lectures for companies’ employees at universities, lectures for university researchers at companies, regular (informal) contacts between companies’ employees and science community within professional associations, conferences and seminars, purchases of results of science research (patents). The assessment of individual level of a company’s cooperation with an isolated way of relationships was carried out on the basis of median values of the answers on the abovementioned questions according to the Likert scale where 1 denoted the cooperation not developed at all, but 5 corresponded to a well-developed cooperation.
2. The individual/institutional level, the way of relationships – vertical at a long distance

The individual/institutional level of relationships between universities, government and industries with a vertical way of relationships with a long distance can be characterized by the realization of invitations for university specialists to work part-time at companies, master-classes for companies' employees at universities, training for companies' employees run by university professors. The assessment of individual/institutional level of cooperation with a vertical way of relationships with a long distance was also carried out on the basis of median values of the answers on the abovementioned questions according to the Likert scale where 1 denoted the cooperation not developed at all, but 5 corresponded to a well-developed cooperation.

3. The individual/institutional level, the way of relationships – partnership where there is competition

The individual/institutional level of partnership between universities, government and industries based on the partnerships where there is competition can be characterized by the presence of joint discussions on strategic plans in the process of their elaboration, joint publications, joint debates on dissertations and theses at conferences, organization of joint publication services (journals). The assessment of individual/institutional level of cooperation based on the partnership where there is competition was also carried out on the basis of median values of the answers on the abovementioned questions according to the Likert scale where 1 denoted the cooperation not developed at all, but 5 corresponded to a well-developed cooperation.

4. The institutional level, the way of relationships – horizontal triple helices
The institutional level of relationships between universities, government and industries which is based on horizontal triple helices can be characterized by the G I U G I U Research “Promotion of Cross Border Cooperation between Latvia-Lithuania-Belarus Small and Medium-Sized Businesses: Problems, Opportunities, Prospects”, Project N LLB-2-256 85 presence of the access to special equipment at a company or university, by the investment of funds into provision of universities, regular purchases of results of university research, formal cooperation on the contract basis (e.g. agreement on apprenticeship, cooperation, etc.), joint implementation of projects, permanent or temporary mobility of personnel between companies and universities, setting up new joint companies, a system of incentives for certain taxes established by a municipality. The assessment of institutional level of cooperation which is based on horizontal triple helices was also carried out on the basis of median values of the answers on the abovementioned questions according to the Likert scale where 1 denoted the cooperation not developed at all, but 5 corresponded to a well-developed cooperation. Only options 2, 3 and 4 can be considered as a real cooperation, but option 1 – as a basis or pre-requisite.

The main data for analysis in the regions under research was obtained from the survey of 620 small and medium-sized business entrepreneurs in the cross-border regions in Latvia (Latgale region), Lithuania (Vilnius county, Alytus county, Utena county, Panevezys county, Kaunas county), Belarus (Vitebsk oblast, Grodno oblast, Minsk oblast, Mogilev oblast) in the period April-June, 2014. The survey was carried out in the main communication languages in the regions: Latvian and Russian in Latgale, Lithuanian in Lithuania, Russian in Belarus. The sample design by the type of selection – combined, by the method – non-repeated sampling, by the way of selection – stratified by the main directions of the research. The survey was carried out by means of a questionnaire available both in paper version and online to be completed on the Internet (Daugavpils University 2015).

In the process of work on the base in the SPSS programme, the survey data were subjected to weighting on the main directions of stratification, as a result the deviations of the parameters of the sample from the parameters of the general population comprised less than 3%. One of the limitations of empirical research is different methodological approaches to identifying the size of business in the EU and Belarus. Therefore, for the weighting the sampling of Latvian and Lithuanian companies, the EU criteria were applied (Department of Trade and Industry 2015), but in Belarus regions – the criteria defined by the law of the Republic of Belarus, as the weighting is based on the statistical data, but the further analysis of the obtained survey data is based on the EU methodology. The results of the frequency-response analysis as well as other methods of mathematical statistics were applied for the data analysis (Lavrinenko et al. 2015).

3. Results and discussion

Innovation activity means the completion of work and provision of services which are aimed at: creation and organization of production of a fundamentally new product or a product with new consumer features; creation and application of new ways or modernization of the existing ways (technologies) of its production, distribution and use; application of structural, financial-economic, personnel, information and other innovations for the output and distribution of product (goods, work, services), which provide the cost saving or create conditions for it. Innovation product is the result of innovation activity (goods, work, services) meant for realization. Innovation system is a total of subjects and objects of innovation activity which interact in the process of creation and distribution of innovation product and they perform their activity within the framework of the state policy in the field of the development of innovation system. Within the context of the above-mentioned concepts, innovation can be defined as a final result of innovation activity which is realized as a new or improved product that is distributed at the market, or a new or improved technological process that is applied to practical activity.

According to the assessment provided by the cross-border region’s entrepreneurs, the biggest share of innovation product in a company’s profit – 50.7% - is in the sector “Electric energy, gas industry, heat supply and air conditioning”, 38.2% of innovation product is in the sector “Water supply; upkeep and rehabilitation of waste water and waste”, 32.2% of innovation product is in the sector “Finance and insurance activity”, 30% of innovation product is in the sectors “Professional, scientific and technical services” and “Information and com-
munication services”. The least amount of innovation product in a company’s profit (from 0% to 10%) is in the sectors “Education”, “Administration and servicing offices”, “State government and security; social insurance”, “Construction”, “Wholesaling and retailing; automobile and motorbikes repair”, “Agriculture, forestry, fish industry”, “Manufacturing industry”, and “Transport and storage”.

![Fig.2. Assessment of Innovation Product in the Company’s Profit (%)](image)

*Source:* authors calculations in SPSS according to the survey data in 2014 within the project “The Establishment of the United Entrepreneurship Support and Networking System for the Sustainable Latvia, Lithuania and Belarus Cross Border Cooperation” (B2B) funded by the cross-border cooperation programme Latvia-Lithuania-Belarus “European Neighbourhood and Partnership Instrument 2007-2013”

*Note:* (A) Agriculture, forestry, fish industry, (B) Mining industry and quarrying, (C) Manufacturing industry, (D) Electric energy, gas industry, heat supply and air conditioning, (E) Water supply; upkeep and rehabilitation of waste water and waste, (F) Construction, (G) Wholesaling and retailing; automobile and motorbikes repair, (H) Transport and storage, (I) Accommodation and catering services (hotels, etc.), (J) Information and communication services, (K) Finance and insurance activity, (L) Real estate, (M) Professional, scientific and technical services, (N) Administration and servicing offices, (O) State government and security; social insurance, (P) Education, (Q) Health and social service, (R) Art, entertainment and leisure, (S) Other services

While assessing the development of partnership between enterprises and local municipalities in different sectors, it has been determined that its development at the institutional level with the way of relationships – horizontal triple helices is poor or very poor in all sectors, except for the sector “Water supply; upkeep and rehabilitation of waste water and waste” with the median value of 3.5 (higher than average). The individual/institutional level with the way of relationships – partnership where there is competition is developed higher than average in the sector “Electric energy, gas industry, heat supply and air conditioning” with the median value 3.4; a little higher than the average (the median value 3.9) – in the sector “Water supply; upkeep and rehabilitation of waste water and waste”, the average (the median value 3) in the sector “Education”. In other sectors this type of partnership is developed poorly or very poorly (the median values from 1 to 2). The individual/institutional level of relationships with a long distance is very well-developed in the sector “State government and security; social insurance” (the median value 5), developed in the sectors “Education” the median value 3) and “Water supply; upkeep and rehabilitation of waste water and waste” (the median value 3.6). The individual level with the way of relationships – isolated has a high value in the sector “State government and security; social insurance” (the median value 4), higher than the average in the sectors “Electric energy, gas industry, heat supply and air conditioning” (the median value 3.5), “Water supply; upkeep and rehabilitation
of waste water and waste” (the median value 3.4), “Finance and insurance activity” (the median value 3.6), the average development in the sectors “Education”, “Health and social service” (the median value 3). In general, the sectors “Water supply; upkeep and rehabilitation of waste water and waste”, “Electric energy, gas industry, heat supply and air conditioning”, “State government and security; social insurance”, and “Education” are the leaders in the partnership between the enterprises and local municipalities (see Fig. 3).

![Cooperation between the enterprises and local municipalities](image)

**Fig. 3.** Cooperation between the enterprises and local municipalities (the median values) (1 - not developed at all, 5 – develop well)

**Source:** authors calculations in SPSS according to the survey data in 2014 within the project “The Establishment of the United Entrepreneurship Support and Networking System for the Sustainable Latvia, Lithuania and Belarus Cross Border Cooperation” (B2B) funded by the cross-border cooperation programme Latvia-Lithuania-Belarus “European Neighbourhood and Partnership Instrument 2007-2013”

**Note:** (A) Agriculture, forestry, fish industry, (B) Mining industry and quarrying, (C) Manufacturing industry, (D) Electric energy, gas industry, heat supply and air conditioning, (E) Water supply; upkeep and rehabilitation of waste water and waste, (F) Construction, (G) Wholesaling and retailing; automobile and motorbikes repair, (H) Transport and storage, (I) Accommodation and catering services (hotels, etc.), (J) Information and communication services, (K) Finance and insurance activity, (L) Real estate, (M) Professional, scientific and technical services, (N) Administration and servicing offices, (O) State government and security; social insurance, (P) Education, (Q) Health and social service, (R) Art, entertainment and leisure, (S) Other services, (T) Households as employers; manufacturing goods for own needs and provision of services by individual households.

While assessing the partnership between the enterprises and research institutions in the cross-border region in general, its poor development should be mentioned. The sectors “Education”, “Electric energy, gas industry, heat supply and air conditioning”, “Water supply; upkeep and rehabilitation of waste water and waste” are the leaders, although the median values in all of the four assessed levels are lower than average.
Fig. 4. Cooperation between the enterprises and research institutions (the median values)
(1 – not developed at all, 5 – develop well)

Source: authors calculations in SPSS according to the survey data in 2014 within the project “The Establishment of the United Entrepreneurship Support and Networking System for the Sustainable Latvia, Lithuania and Belarus Cross Border Cooperation” (B2B) funded by the cross-border cooperation programme Latvia-Lithuania-Belarus “European Neighbourhood and Partnership Instrument 2007-2013”

Note: (A) Agriculture, forestry, fish industry, (B) Mining industry and quarrying, (C) Manufacturing industry, (D) Electric energy, gas industry, heat supply and air conditioning, (E) Water supply; upkeep and rehabilitation of waste water and waste, (F) Construction, (G) Wholesaling and retailing; automobile and motorbikes repair, (H) Transport and storage, (I) Accommodation and catering services (hotels, etc.), (J) Information and communication services, (K) Finance and insurance activity, (L) Real estate, (M) Professional, scientific and technical services, (N) Administration and servicing offices, (O) State government and security; social insurance, (P) Education, (Q) Health and social service, (R) Art, entertainment and leisure, (S) Other services, (T) Households as employers; manufacturing goods for own needs and provision of services by individual households.

There is a large number of science and research centres on the territory under research: in Latvia cross-border region – 3 centres (The Central Statistical Bureau of the Republic of Latvia 2015), in Lithuania cross-border region – 55 centres (Statistical Department of Lithuania. Data of Statistical Department of Lithuania 2015), in Belarus cross-border region – 322 centres (National Statistical Committee of the Republic of Belarus 2015).

Introduction of innovations in business activity also goes very slowly on the territory, although, there are a few positive trends: the innovation performance index in Latvia in 2006 comprised 0.20, but in 2013 it was already 0.24 (20% increase), in Lithuania – 0.27 and 0.31 respectively (15% increase). The indicators in Latvia and Lithuania are considerably lower than the average EU index - 28. According to this index for 2013 Lithuania occupies 19th place, Latvia is on 24th place among the EU group-28 (Innovation Union Scoreboard 2013). In Belarus the methods of statistics on research and innovation activity harmonized with the international practice are not applied. In order to provide the international comparativeness of the indicators of innovation activity, the research on the indicators of innovation activity in Belarus was carried out in accordance with the methodology of European scale of innovations which is applied in the EU states. In 2010 the value of the Innovation Development Index in Belarus was significantly lower than the average in the 27 EU states and comprised 0.26 (Bogdan 2010).

In the period 2006 - 2013 the expenditure on science and technologies increased from 0.79 to 0.95% of GDP,
in Latvia it decreased from 0.65 to 0.60% of GDP. Both indicators are much lower than the average indicator in the EU-1.78% in 2006, and 2.01% in 2013 (Eurostat data base 2015).

Summarizing the median values of cooperation between universities, business and government by finding the average, the following sectors-leaders have been identified: “Electric energy, gas industry, heat supply and air conditioning”, “Water supply; upkeep and rehabilitation of waste water and waste”, and “Education”. However, the development in every four partnership levels is on the average level or lower (see Fig. 5).

Fig. 5. Cooperation between universities, business and government (the median values)

(1 – not develop, 5 – develop well)

Source: authors calculations in SPSS according to the survey data in 2014 within the project “The Establishment of the United Entrepreneurship Support and Networking System for the Sustainable Latvia, Lithuania and Belarus Cross Border Cooperation” (B2B) funded by the cross-border cooperation programme Latvia-Lithuania-Belarus “European Neighbourhood and Partnership Instrument 2007-2013”

Note: (A) Agriculture, forestry, fish industry, (B) Mining industry and quarrying, (C) Manufacturing industry, (D) Electric energy, gas industry, heat supply and air conditioning, (E) Water supply; upkeep and rehabilitation of waste water and waste, (F) Construction, (G) Wholesaling and retailing; automobile and motorbikes repair, (H) Transport and storage, (I) Accommodation and catering services (hotels, etc.), (J) Information and communication services, (K) Finance and insurance activity, (L) Real estate, (M) Professional, scientific and technical services, (N) Administration and servicing offices, (O) State government and security; social insurance, (P) Education, (Q) Health and social service, (R) Art, entertainment and leisure, (S) Other services, (T) Households as employers; manufacturing goods for own needs and provision of services by individual households.

In the survey the managers of the enterprises mentioned the main hurdles and limitations for cooperation between business and government, government and research institutions, research institutions and business. The Latvian respondents mentioned a high level of bureaucracy in the government institutions, the lack of both motivation and trust as the limitations for cooperation between business and government; the lack of information, the absence of dialogue, the underestimation of science by government, and the lack of common interests were mentioned as the limitations for cooperation between government and research institutions; the lack of motivation and bureaucracy were mentioned as the limitations for cooperation between business and research institutions.

The Lithuanian respondents mentioned the following hurdles for cooperation between business and govern-
ment: the fiscal policy, the lack of transparency in cooperation, rules and regulations, corruption, distrust, the lack of both information and common aims, the complex legislation, the tax system, bureaucracy; they mentioned the following limitations for cooperation between government and research institutions: the lack of common goals and motivation for cooperation, the underestimation of science, the lack of motivation, the lack of cooperation strategy, the lack of common interests and activities; the lack of motivation and bureaucracy, entrepreneurs do not use the researchers’ potential, the lack of ties between theory and practice, the lack of initiative were mentioned as the limitations for cooperation between business and research institutions.

The Belarus respondents mentioned the following limitations for cooperation between business and government: the imperfect legislation, bureaucracy, corruption, the conservatism of laws, distrust, the instability of economy and currency, the absence or lack of information, the tax system, the lack of finance; the following limitations for cooperation between government and research institutions were mentioned: the lack of interest in cooperation, low pay for the researchers, bureaucracy, corruption, the absence or lack of information, distrust, the lack of finance and investments; the following limitations for cooperation between business and research institutions were mentioned: the lack of interest, the desire to receive an immediate outcome with minimal investment into research, high cost of research and development, the difference in the realized goals and approaches to them, the absence or lack of information, distrust, the lack of expertise.

Conclusions

The most preferable development of regional innovation systems is the development towards the enhancement of horizontal interactions between government, science and business by forming the so-called triple helix. The research activity of universities interacts with government and business representatives mutually influencing each other and promoting the economic development of the regions. Universities encourage the development of innovation activity both by discovering new phenomena, etc. and commercializing technologies and setting up small businesses. However, according to the received assessment the partnership between universities and business enterprises leaves much to be desired. The interaction between science and business is very poor, and it cannot be considered as a coordinated development helix. Traditions of the planned Soviet economy are still rather strong, as the form of interaction which used to be typical of the Soviet planned economy stipulated the dependency of any kind of activity (research, educational, or innovation) on the state and all these kinds of activities used to be financed by the state. The administrative-command system provided too little space for the initiative from “below” and therefore it discredited itself as a model for development. The market model is based on a dominant role of the market, but the state sets social and political goals which require science and innovations in order to achieve them, and it decreases the amount of finance with a view to the increase in intensity of innovation activity and companies’ innovation activity. However, because of the gaps at the market, the triple helix model, which is based on the coordination of activity of the actors of an innovation process who create mixed organizational forms and perform new to them functions which allow filling these gaps, is much more effective.

Therefore, science should transform from the sector which produces new knowledge into an integral part of the innovation regional system. The role of the state in the innovation development should decrease at the same time. On the basis of the assessment of partnership between government, science and business, it is possible to draw a conclusion that the innovation system of triple helix on the Latvia-Lithuania-Belarus cross-border territory is not highly developed. It has been determined that the development of individual partnership with an isolated way of relations at the average level is already a prerequisite for the further development of the partnership at the institutional level, and therefore, for the development of the triple helix partnership between government, science and business.

In order to improve the interaction between science and business it is necessary to create and support the emergence of research groups within the structure of a university or research organization which act in the direction of search for alternative sources of financing, to encourage researchers’ participation in the transfer of technologies to businesses via mediating mechanisms, to involve academic organizations into entrepreneurial activities and to set up businesses. It is necessary to gradually intensify the communication networks between govern-
ment, business and science. Besides that, network structures provide both the economy of scale of production and the use of new technologies, as well as additional income. The implementation of the gradual transition of the cross-border region into the innovation way of development on the basis of the triple partnership should promote its sustainable development and function.

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SUSTAINABLE ECONOMIC DEVELOPMENT POLICIES IN ROMANIA WITHIN THE EU AND BREXIT CONTEXT

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Abstract: This paper aims at determining the strategic priorities for Romanian decision makers after the Brexit. The survey shows that they perceive the development of the rural regions, education and energy management as the main challenges for the next planning period. A comparison between the performance of Romania and the rest of the EU in these areas for the periods before and after Romania accession to EU confirm the opinion of the participants. The research also presents the respondents’ opinion in regard to what can be done better to absorb the European funds and to develop economy in a sustainable way. Brexit phenomenon is being analyzed and discussed; recommendations and policy implications for Romania provided.

Keywords: Romania, sustainability, Brexit, economic growth, EU 2020

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JEL Classification: Q01; E01.

1. Introduction

Sustainable development has become archetype of the world today and countries, organizations, institutions all over the world have committed towards its goals (e.g. Rezk et al. 2016; Šimelytė et al. 2016; Tvaronavičienė 2016; Branten, Purju 2015; Shatrevich, Strautma 2015; Oganisjana et al. 2015; Vojtovič et al. 2015; Petrenko et al. 2016; Dobrovič, et al. 2016). Romania as a member of the EU, views the Brexit as both an opportunity and a crisis. Brexit has low influence on the Romanian economy because it confers small threat to the national currency and the political parties in Romania favor European Union despite the Britain’s exit. The major strategy has been done to improve and promote management of resources which can lead to efficient economy. To be economically sustained, the country, through its leaders, has recognized the need to fill the competitive gaps (also through a national program to establish and promote business incubators, business accelerators and technological parks, important tools for sustainable economic development) to overcome threat from other competitors in the globe (Romanian National News Agency, 2016). For the country to establish economic targets in its many fields like education, energy and economic growth and development, there is a need to adopt the strategy set by the European Union by 2020. The European Union has set economic development objectives that should be reflected in the policies that each member state comes up with (Government of Romania, 2008). Brexit can strengthen the potential of the European from the challenges it is currently encounters, and Romania
ing sustainable economic development policies in the country.

The other European Union members must see the Brexit as an opportunity of filling the gap which will be left by British products and services; European Union manufacturers and traders will have a huge competitive advantage on market in regard to manufacturers and companies outside the Union (including United Kingdom). For UK, the Brexit is a 10 steps backward which will end up with huge economic loss. The inability of EU leaders to impose all the rules and regulations which applies to other member countries to UK also, is one of the factors that contributed to UK decision of exiting. Keeping all the privileges which had with its ex-colonies and several other advantages, its intention from beginning to do not adopt euro should have represented an alarming signal for EU leaders. Is a hard lesson but there is hope that EU leaders will learn it. This is both a qualitative and a quantitative research paper that discusses effective implementation of sustainable economic development policies by Romania within the context of EU and Brexit.

2. Review of Literature

Romania in European and Brexit Context. Romania needs to implement sustainable economic development policies through the adaptation and customization of the European context of economic sustainability. The country is focused on developing its economics which has made the nation launch the sustainable competitive project after Brexit. This is aimed at addressing the challenges faced. The country is learning from Brexit and other European members which have already implemented the competitive programs in the European context (Purgaru, 2016). The competitive Romania project is best suited in achieving the sustainable economic development through trade and relationship of the government of Romania with the business environment. It is important for the country to review its policies in relation to economic growth, taxation and investment promotion and have them revised in conformity to the European dimension to suit the context. The implemented policies are those that encourage green economy through the use of available resources in addition to industrial policy as well as those promoting new jobs and innovations. The nation should also plan ecologically with an aim of minimizing energy cost utilization. This policy is very important in reducing the consumption of energy by around 340 TWh by 2020. A policy that supports the performance of energy to reduce cost by 2020 should also be implemented. Moreover, economic development of the country will be sustained with effective implementation and monitoring of the national reform program.

Implementation of the economic development policies guarantees the alignment of Romania with the EU efforts to environmental friendly activities that include reduction of green-house gas emissions. A policy of integrated measures is necessary to support the transition to an economy that is more efficient in the usage of resources as well as the development of new technologies that boost economic growth. In this case, Romania needs to implement a policy for sharing energy from sources that are renewable as a way of minimizing its gross consumption. It is also a way of achieving the target set by the national government to reduce the primary consumption of energy by nineteen percent.

Currently, Romania has a variety of potential sources of renewable energy including wind energy, solar energy, and hydro-energy. The country is using forty-eight percent of hydro energy and 500MW of wind power. The uses of modern technologies that are based on green solutions will assist Romania to attain the 2020 renewable energy sources potential. It requires Romania to implement the national target pledge of renewable sources of energy and direct its actions to align with the general objective of the Romania Energy Strategy 2007-2020 (Government of Romania, 2008). Moreover, There is a stringent need for a fiscal relaxation and reduce the number of taxes due to the present economic conditions all over the world; the fiscal relaxation will bring more money in the economy and to government (from underground economy and from foreign investors), on the principle of taking a small amount and from many. Decreasing the taxation, will also decrease costs and will allow companies to create new jobs and hire more people.

Romania has low risk in relation to Brexit which means that it is not among the countries that enjoyed strong trade, financial links, and investments with the United Kingdom. Romania is keen to implementing sustainable
economic development policies with the support of the Business Environment Ministry, the National Bank of Romania, and other interested stakeholders. Since Romania remains an EU member state that is least affected by the migration of the United Kingdom from the Union, the implementation of the economic policies has to be done in conformity to the current context of EU by capitalizing on its competitive advantages and other national opportunities available within the geographical area, including those offered by Brexit (Casarejos, Frota, Rocha, da Silva, & Barreto, 2016).

A new model, therefore, required to guarantee the economic development policies is implemented effectively. Romania must adopt a post-EU accession country project by implementing a sound sustainable economic vision for the country in the long-term. There is also the need for responsible and realistic governance to policy implementation because responsible governance is crucial in achieving economic reforms, fiscal simplification, and increasing transparency by reducing corruption and bureaucracy. Concerning Brexit, Romania has a favorable macroeconomic picture, as it has a promising forecast of economic growth of four percent per annum regarding the country’s financial and monetary stability. However, there is the need for expanding the sustainability prospects to achieve a lasting and healthy economic growth. Romania is required to achieve its prospects through implementation of economic policies that reduce the public debt and discourage a budget deficit (Government of Romania, 2016). The order in which various policies are implemented has an impact on the economic development. By understanding the impact of policy sequencing the policies would be implemented and monitored in a more effective manner with no additional implementation of unused and probably high public cost policies. By structuring policies in a particular manner, the effectiveness of other policies can be achieved (Krasko & Doris, 2012). Therefore, the main research question of this study is whether there is any particular order that the Romanian government should stage the sustainability economic development policies. Based on this question we aim to prepare a representation of the sustainable development in Romania in comparison to similar conduct of other EU states.

Answering this research question implies assigning the sustainability factors different priorities in accordance to their contribution to the economic growth. This leads consequently to the following questions:
1. Which area of policies had the best chance to raise economic growth?
2. How is the highest placed policy interest correlated to sustainable economic development?
3. What is the economic growth potential of Romania in relation to other EU and Brexit states?
4. How do the development indicators compare in relations to other EU and Brexit states?

These questions will be answered as a part of an implementation analysis which will be discussed in the following section.

3. Implementation analysis Framework

This analysis examines the implementation of sustainable economic development policies by Romania in EU and Brexit context as a tool to support economic growth of the country amidst strong competition from other EU member states. The analysis is intended to show the priorities that Romanian decision makers should address with regard to the Brexit. A comparative analysis has been carried out to establish the relevant policies in different economic sectors that require adoption and implementation with a focus of achieving economic sustainability. The main purpose of this study is to determine the staging of the different policies by the Romanian government for the nation to grow economically. A configuration of policies that suits sustainable economic development in Romania will be summarized. Economic analysis will be done to highlight the relationship among factors that determine the implementation of sustainable economic development policies in Romania.

4. Methodology

In order to address these research questions we conducted a survey of 30 Romanian decision makers. We attempted to know their opinion on what they perceive as important factors and their relation to economic sustainability. In accordance with the European Union strategic plan Europe 2020 we focus especially on the
following policies areas: development of rural areas, education, energy, the business environment and innovation and development. Below in Appendices we show the survey questions asked. Question 1 is displayed in Table 1 and Result I, whereas question 2 and 3 is observed in Result II, while question 4 is displayed in Result 3. The survey questionnaire plays a significant role in treating the questions pertaining to decision makers on Romania’s developmental policies. The participants were required to order the policy areas based on their level of significant and showing in what order they felt that their implementation would lead to increased economic development of the country by answering the questionnaire (Appendice 1). This meant that they had to score each of the policy areas on a scale of 1-5, where 1 indicated the first area where policies needed to be implemented, and 5 was the last area of policy implementation.

The dependent variable in this study was economic growth, while the various policy areas were the independent variables. The collected data was subjected to statistical analysis where descriptive analysis was first conducted to get the means of each area from the 30 participants. The comparative analysis is based on survey and summarized data from The Sustainable Development Economic-Social Indicators provided by the European database Eurostat (Table 2). Monitoring sustainable developments also requires the existence of indicators that measure this process. The current structure of the sustainable development indicators, cultivated by the European Commission, is an adequate guide for qualitative targets of the EU sustainability strategy. These indicators were first drawn up in 2007 as a report for EU Sustainable Development Strategy. The purpose of these indicators is to build a structured plan based on the objective and variables. The present system of the sustainable development process, developed by the European Commission, is considered adequate for observing the quantitative targets of the EU Strategy. Their role is to assess the economic performance in correlation to the social and ecological activities. Therefore, these indicators form a database that will serve as a gauge of performance and areas of growth.

5. Results

We present results related to policy area below in Table 1. Further we will call those results

**Result I**

<table>
<thead>
<tr>
<th>Policy area</th>
<th>Number of Participants</th>
<th>Percentage</th>
<th>Staging based on the correlation results (C1=95%)</th>
<th>Agreement to effectiveness of staging placing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of rural areas</td>
<td>15</td>
<td>50%</td>
<td>1</td>
<td>15/15</td>
</tr>
<tr>
<td>Education</td>
<td>6</td>
<td>20%</td>
<td>2</td>
<td>6/6</td>
</tr>
<tr>
<td>Energy</td>
<td>5</td>
<td>17%</td>
<td>3</td>
<td>4/5</td>
</tr>
<tr>
<td>The business environment</td>
<td>3</td>
<td>10%</td>
<td>4</td>
<td>2/3</td>
</tr>
<tr>
<td>Innovation and development</td>
<td>1</td>
<td>3%</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>30</strong></td>
<td><strong>100%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Result II**

Majority of participants answered ‘yes,’ to question 2 of the survey, Result II represents the feedback for the follow up question.

- Amending sustainable agriculture resources, especially on high quality land.
- Advancement in technology and updated tools (scientific, political and financial) to ensure proper processing of energy and material flows within the biosphere.
- Promoting the integration of crop production along with animal production.
- Discourage the separation of intensive livestock production from crop production.
- Ensure compensation of expenses for agriculture readjustment (price policy).
- Provide effective environment protection measures.
- Provide necessary resources for the application of programs that include environment monitoring.
Result III (answers for question 4)

- Financial relaxation (decrease the taxes as amount and as number) for production, commerce and trade of agricultural products and materials necessary for this production, food and ecological products, books and related materials for education, medical services and supplies as well as for merchandise and public transportation. (22 respondents)
- Provide more assistance for rural development through specialized services and decentralized infrastructures. (12 respondents)
- Attract more European funds on various measures and implement active consultancy strategies for those interested. (15 respondents)
- Bureaucracy reduction and simplification which should ease the burden of investors, companies, etc. (11 respondents).
Table 2. The sustainable development’s economic-social indicators

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Romania</th>
<th>EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth rate of real GDP per capita</td>
<td>6,485714</td>
<td>2,91111</td>
</tr>
<tr>
<td>Total investment, % of GDP</td>
<td>21,93714</td>
<td>27,1275</td>
</tr>
<tr>
<td>adjusted disposable income in PPP</td>
<td>5664,667</td>
<td>8866,125</td>
</tr>
<tr>
<td>Net Income</td>
<td>46882,71</td>
<td>105851,6</td>
</tr>
<tr>
<td>Total RD expenditure, % of GDP</td>
<td>0,392857</td>
<td>0,464286</td>
</tr>
<tr>
<td>Turnover from innovation, % of total turnover</td>
<td>17,55</td>
<td>11,53333</td>
</tr>
<tr>
<td>Energy intensity of the economy, kgw/1000 euro</td>
<td>395,4143</td>
<td>282,2</td>
</tr>
<tr>
<td>Total employment rate, % employment rate</td>
<td>65,18571</td>
<td>64,67778</td>
</tr>
<tr>
<td>Unemployment rate, % of active population</td>
<td>7,614286</td>
<td>6,688889</td>
</tr>
<tr>
<td>At risk of poverty rate after social transfer, %</td>
<td>17,33333</td>
<td>23,43333</td>
</tr>
<tr>
<td>Public expenditure on education, % of GDP</td>
<td>3,308333</td>
<td>3,7725</td>
</tr>
<tr>
<td>Early leavers from education and training</td>
<td>17,73333</td>
<td>3,7725</td>
</tr>
<tr>
<td>Young people neither in employment nor in education and training (15-24 years) - % of the total population in the same age group</td>
<td>17,28</td>
<td>3,7725</td>
</tr>
</tbody>
</table>
6. Analysis

In the survey shown in the Table 1, 30 key participants (decision makers) were involved in an opinion-based survey. Policies relating to development of rural areas, education, energy, the business environment, innovation, and development were subjected to the analysis. The decision maker participation survey acted as an index towards what decision makers considered significant policies to benefit economic growth. With 50% of the total votes, participants placed rural development as the number one priority in developing rural areas. When asked if the ordering of the policy directly affects the effectiveness of economic growth potential, majority of participants had answered ‘Yes,’ as indicated from Table 1. The questionnaire results indicated that within the scope of rural development, half of the objective was based on agricultural policies. In Result II, the following issue of concern was written in response to the last question, as a feedback to question 2. In Result 3, they suggested what should be done to improve economic sustainability and policies.

Participants have acknowledged in the questionnaires that rural development serves as the most important factor to the most effective economic development. With agriculture being the leading concern of rural development this leads to the second question: How rural development policies are highly correlated to sustainable economic development? As previously stated, implementation of agricultural issues potentially effects Romania’s GDP. The Ministry of Agriculture and Rural Development (MARD) have stated that poor agricultural practices are destroying farmlands. Therefore, the cost and usefulness of agricultural land diminishes, this ultimately leads to detrimental problems for the economy. With high emphasis on farm profitability, the concern for eco-sustainability has been neglected. The MARD argues that this is the main interdependency between rural development and economic sustainability sustaining the environment directly relates to the long-term development of economic growth.

Romania has endorsed a series of political decisions and regulating documents, which stipulate measures for implementing sustainable development. These decisions are based on the Eurostat database with indicators that out problems end up becoming the object of action-solutions and strategies. The sustainable development’s main indicators include the present economic-social position and current strategies in relation to other EU states.

The indicator targets our previous question posed: What is the economic growth potential of Romania in relation to other EU and Brexit states? According to the data chart in Table 2, Romania has a comparatively high potential for economic growth. In 2007, it recorded a strong paradigm of high gross domestic product per inhabitant. The growth rate from 2000 to 2006 reached 51.35% (Table 3). The growth rate average of real GDP of this six-year period had reached 6.48%, which is three times higher than the EU average.

<table>
<thead>
<tr>
<th>Period</th>
<th>Romania GDP per capita</th>
<th>Growth 2000-2006 (%)</th>
<th>Growth 2007-2015 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>3700</td>
<td>51,35135</td>
<td>18,03279</td>
</tr>
<tr>
<td>2006</td>
<td>5600</td>
<td>1,145038</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>6100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>7200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>22900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth Rate GDP per capita</td>
<td>25500</td>
<td>26200</td>
<td>26500</td>
</tr>
<tr>
<td>2000-2006 (%)</td>
<td>11,35371</td>
<td>1,145038</td>
<td></td>
</tr>
</tbody>
</table>

This exponential Growth of Romania’s GDP is the direct consequence of the infrastructure developing policies since 2000. Romania’s economic growth is also correlated with both private and external investments. The growth of total investment rate to GDP from 2000 to 2006 has witnessed a striking 60% growth, just a short six years later. These statistics are also striking when compared to other EU—average (Table 4).
Romania’s total investment rate to GDP decreased after its accession to the European Union. This decline can be the consequence of many different factors and do not necessary imply a negative trend. Romania economic Growth does not only rely on investment, but also on efficiency and cost saving. In fact, energy intensity of Romania had dropped 37.5% from 2000 to 2014, but is still 1.93 times higher than EU average (Table 5). This displays a low efficiency towards supplying product and services.

<table>
<thead>
<tr>
<th>Period</th>
<th>Romania</th>
<th>EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>18.93</td>
<td>21.47</td>
</tr>
<tr>
<td>2006</td>
<td>21.22</td>
<td>22.49</td>
</tr>
<tr>
<td>2007</td>
<td>25.94</td>
<td>22.49</td>
</tr>
<tr>
<td>2013</td>
<td>30.23</td>
<td>22.87</td>
</tr>
</tbody>
</table>

7. Discussion

Implementation of the sustainable economic development policies in Romania should be based on the lessons learned from EU and Brexit. The policies should be communicated to the relevant bodies that govern them so that they are effectively enacted. Today, Romania has an economic status that is rich and valuable which favors sustainable development of economic policies, but there is no framework that is clearly defined for the new guidelines. It is for this reason that key government officials (50%) strongly believe that the rural regions of the nation are the pillars of the national economy because they ensure economic development due to the different resources they hold for Romania. Romania should move to a sustainable economic development by valuing the fundamental elements of its economy in the rural and urban areas including: development, increasing employment, providing a better business environment, energy, innovation, and education. In relation to the impact The EU has on Romania, the country has to adhere to the set strategy in rural areas. Studies show that the rural areas in Romania play a crucial role in the development of the country’s economy (Bozra & Gribincea, 2015). The EU strategy 2020 stipulates that economic sustainability is achievable in European countries when the rural regions have been considered. Romania has a lot to learn from the EU context and develop the rural areas.
economically. Statistics show that the rural areas in Romania cover 87.1% and include 44.9% of the country’s population (National Institute of Statistics, 2013). Sustainable economic development in the rural Romania is still a topical issue that remains unresolved (Chiritescu, 2011). The unfavorable conditions do not support an improved quality of life that promotes sustainable economic development. There is the need for implementing policies on how to manage human resources to achieve sustainability in the economy (Tofan, 2004). Moreover, the EU recognizes that education is significant in achieving sustainable mobilization of the economy. 56.7 percent of the rural population in Romania has low levels of education when compared to the urban population (Bozra & Gribincea, 2015). The high inconsistencies of University graduates in Romania reveal its need for revising development policies for the rural areas. The urban areas are seven times educated than rural areas. Economic sustainability can only be achieved when Romania achieves a balance in education levels at the urban and rural areas. Lack of education and training has increased poverty levels in the rural areas with a 15% synthetic index when compared to the national average of 35.6% (Bozra & Gribincea, 2015). The unemployment among people tertiary education levels is lower than among people with lower educational levels. Most critical is the unemployment among people with less than primary and primary education level (Table 7).

<table>
<thead>
<tr>
<th>Table 7. Employment by educational attainment in Romania and EU</th>
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<tr>
<td>Employment for education level 0-2 less than primary, primary and lower secondary</td>
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<tr>
<td>Employment for education level 3 and 4 upper secondary and post-secondary non tertiary</td>
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<td>Employment for tertiary education level</td>
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Romania needs to follow the EU recommendations and implement policies that promote education in all areas of the country. Improving on the quality of human resources is the first priority that the Romanian government can do to achieve sustainability as they are essential infrastructure components in developing sustainable economic policies. Energy is another area where the EU strategy 2020 is focusing on and Romania needs to implement policies that will support the reduction of its costs so as to achieve sustainable economic development (Csata, 2014). The policies should include implementation of measure to reduce green emissions by 30 percent by 2020, increase the utilization of renewable energy by 20 percent of the total energy usage in the country, and 10 percent use of renewable bio-fuels for the entire utilization in transport (European Commission, 2010). There is the need for setting a framework that supports the reduction of energy usage to achieve the set energy objectives within the EU context. Through promotion of highly efficient co-generation of energy, Romania can reduce energy usage and, thereby, its cost based on thermal energy demand. This will make the nation enjoy various benefits, such as saving primary energy sources and reduction of greenhouse emission of gases, such as CO₂ just like China is trying to do (Lo, 2015).

The reason why energy might not have been chosen as the most significant area (20%) could be because Romania has already achieved the national target of 24% required in the year 2020. This has been achieved through the implementation of the green energy policy to produce 24% of the needed energy requirements. Romania has already enabled end-users to obtain green certificates which encourage investors in green energy. It has made the energy sector promising in attracting achievement of sustainability in economic development (Csata, 2014). Romania faces a problem of connecting and harmonizing to EU economic framework. Its framework does have a proper account of the EU economic changes. There is the need for implementing a framework that will allow changes in the agreements between Romania and other EU countries. Statistics show that Romania is yet to achieve the EU competitive scorecard in energy because it lags behind the EU average. There is a need for continued use of biomass as fuel in the energy co-generation process so that the effectiveness of the implemented policies will be great. In addition, policies that encourage eco-efficient and eco-design need to be advocated in the legislations of the country (UN, 2009). More importantly, Romania needs to implement policies that support the EU regional policy. In meeting the regional cohesion policy of enhancing the business environment,
Romania has taken the initiative to develop various sectors including industrial sites and promoting tourism among other growth poles (Dodescu & Chririla, 2014). Developing the tourism sector is achievable by creating more tourist destinations that enhance the creation of job opportunities as a way of promoting sustainable economic development (Patrichi, 2011). The table below shows efforts that Romania has made in adopting and implementing the regional policy. Another area where the implementation of related policies is required is that of innovation and employment. The domestic market in Romania presents promising innovation technologies that increase the employability of the educated workforce. Among the various objectives of the EU 2020 strategy, providing employment opportunities to all populations in the EU region is a priority. To achieve this goal, Romania needs to work towards implementing a reliable domestic market that encourages the employability of the population. Better policies regarding loan accessibility are necessary for Romania in achieving economic recovery through improved financing of investments. To achieve this there is a need to target industry development and utilization of technological opportunities that are available to achieve efficiency in production and creation of high-skilled job openings.

Even though Brexit would alter the relative strength of member states within the EU, it will definitely have less negative impacts on Romania, as the nation did not draw on UK’s support. Sustainable economic development in Brexit values green business as a way of promoting sustainable development of economic policies. Hackenesch (2016) says that Brexit plays a big role in defining the economic development policy of other countries in the world. Romania should learn from the cohesion and economic policies of Brexit whose focus is on single market as well as providing subsidies for agriculture and trade agreements. The economic development policy in Brexit aims at reducing poverty as well as utilizing the comparative advantages of specific factors to achieve economic sustainability (Environmental Data Interactive Exchange, 2016).

Business might be disrupted by the migration of United Kingdom from EU. The primary focus of achieving sustainable economic development policies is energy security and independence. It threatens business in the international arena and that countries associated with the EU may face challenges when doing business with others in United Kingdom. Romania needs to learn from this mistake and remain in the EU, work together with other member states, and implement successful economic development policies that benefit the country. If Romania makes a mistake of isolating itself from EU then it will be less efficient and effective in implementing relevant economic development policies. These are the proposed solutions that the country should enact.

Conclusions

As a member of European Union, Romania has a lot to learn from the union and other member states, including Brexit. This is a research paper whose main aim was to discuss how the country can implement economic development policies in the context of EU and Brexit. Adaptation of best economic practices is crucial to the achievement of a sustainable economic development through implementation of the already set policies. Policies that require implementation include those that encourage the economic development of the country in cost of energy reduction, education enhancement, and promotion of innovation and business environment to guarantee employment. The EU strategy towards sustainable economic development and lessons learnt from Brexit should be the main focus for Romania, as it implements its own policies to have a sustained economic growth and remain competitive economically with other EU member states by staging policies based on their level of significance.
References


Appendix 1

The Questionnaire

Dear Sir/ Madam,

We are carrying out a study related to the implementation of sustainable economic development policies in Romania. I herein request that you assist me with the necessary information by filling out the provided questionnaire to make it possible to conduct my study and make appropriate conclusions and possible recommendations. The obtained information will only be confidential.

1. In reference to the current policy areas, development of rural areas, education, energy, the business environment and innovation and development, in what order do you think the Romanian government should stage them for adoption?

2. Do you think that the ordering of the policies is directly related to their effectiveness in ensuring economic growth for Romania?

3. What is the issue of concern for your reasoning in question 3 above?

4. What do you think it can be done to improve the economic context in Romania?
PERSONAL SECURITY AND SOCIAL CARE: A COMPARISON OF GERMANY AND THE CZECH REPUBLIC

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Abstract. This paper focuses on personal security and social care issues in the two EU countries: Germany and the Czech Republic. It is obvious that the Czech legislator strove for a comprehensive and complete Codification. However, it is doubtful whether such a density is really necessary or whether the worldwide trend for the simplification of international private law is not missed. In contrast to this stands the German law, which is limited to a large extent to principles and avoids detail regulations. Exceptions are made only in the case of consumer rights and the registered life partnership. However these two institutes are particularly regulation needy, since they are not yet common in every country. The social care cannot be seen only as the responsibility of regional authorities or the state and its law. The elderly, children, homelesses, living in municipalities, are entitled to expect that their municipality will be fully aware of their problems and needs. The municipality, really state is responsible for all its citizens, and issues involving the social care will be at the forefront in several decades as a result of recent demographic indicators. This fact is also closely related to the responsible legal system supporting development of in-home social care services and quality of social workers at the state level and its law. Both codifications are coherent and effective. However the Czech legislator should think at least about an implementation of the consumer protection. Not at least because the consumers protection is one of the social policies of the European Union.

Keywords: obligation, security, collisions, law harmonization, international private law, social care, Czech Republic, Germany

1. Introduction

The concept of globalization has arguably been used more often than any other label to describe a central development of the current age. Globalization brings with it many threats, including attacks on personal security (Tumalavičius et al. 2016; Tsaurkubule 2016; Novickytė et al.2016; Dubauskas 2016; Belás et al. 2016; Grinevica et al. 2016; Raudeliūnienė et al. 2016; Prause 2016; Fusch, Tvaronavičienė 2016). After the nineteenth-century preoccupation with industrialization and the twentieth-century focus on modernization and development, the discourse on globalization has taken on the contemporary role of describing in a singular term the master pattern of recent and ongoing societal developments coupled with the sustainable development and growth. Formally understood to include structures and processes of increased interdependence across the boundaries of national and otherwise delineated borders, globalization has entered the lexicon of social science only recently, but it has been adopted and applied in theory and research with accelerated speed over the past two decades.
Because of the jurisdictional framing of legal systems, scholars of Czech law had until the advent of the globalization approach developed research traditions that transcended the boundaries of national and local manifestations of law only in the forms of comparative and international studies. Although also transcending the boundaries of Czech manifestations of law, comparative legal perspectives and the field of international law are not to be confused with globalization studies of Czech law. Comparative studies of Czech law analyze the differences and similarities that exist between the legal systems of different nations and other locales, whereas international law refers to the whole of law that is created by intergovernmental agreements among states of European Union in the form of bilateral and multilateral treaties. Comparative and international studies of law affirm the boundaries and jurisdictional restrictions associated with Czech national legal systems, whereas a globalization perspective takes into account the extent to which legal developments transcend such boundaries through the linkages that exist across space. The globalization of law presents a special challenge to Czech scholarship on law because the degree of interlinking between national or otherwise local and global or otherwise border-transcending structures and processes has steadily been increasing in recent years. What then does jurisdictional sovereignty mean in the global village?

The globalization of law poses a number of theoretical and empirical challenges. At the most general level, it changes the level of analysis from relations among citizens and between citizens and the state to the level of the interrelations among states on a horizontal plane, in terms of conflict of cooperation, as well as on a vertical plane as relations among states also affect citizens, especially when they cross nation-bound borders, such as in the case of immigration and tourism. Because globalization by definition transcends spatial boundaries, there is no clearly demarcated locale to the study of the matter. Globalization occurs everywhere or at least in multiple places at once, posing formidable problems to conventional sociological conceptions of research design and subject selection. Because of the peculiar form globalization takes, studies on the global dimensions of Czech law must not only contemplate the movement of law in the direction of one, but also investigate how these global processes and structures in turn impact local and national developments of law. Globalization studies methodologically therefore always imply a comparative approach in which the cases are selected, not on the basis of criteria chosen for theoretical reasons by the researcher, but on the basis of actual interlinkages that exist among them. The collection of international statistical and other relevant empirical information is a special methodological concern.

This article is concerned with the different regulations of the private international law in the Czech Republic and the Federal Republic of Germany. The fact that both legal systems are based on the same law-historical roots, but took in the past 50 years fundamentally different developments, is mostly interesting. While the Federal Republic of Germany in the European Union developed a according to the free market oriented society system, a perfectly new society system should be established in the Czech Republic. Regarding the European law the legal systems of the states of the European Union are based on the same legal principles. In this the European harmonisation process accomplishes an interesting way because it integrates different legal systems, not only the ones of every single member state. The main difficulty is to deal with the different legal traditions within the European Union as are mainly the continental legal system and the Anglo-Americanlegal system. But in the last years were also included different states from Central and Eastern Europe which took a clearly different development in the past 50 years, than the members before joining the Union on Mai 1st 2004. As one of those the Czech Republic before went through a substantial transformation, not least of all because of the focus on the full membership in the EU. Nonetheless there are several acts and regulations which still have major differences, especially if they origin in the years between 1945 and 1989.

2. Analysis of development

The term of private international law. The term of international private law is misleading. Even if it indicates the international character of the law, it’s not, it is national law (Von Hofmann, B., Thorn, K., 2005). It is also no private law in a classical way; it not directly concerned with private law but contains only collision law (Neuhaus, P., 1976). The private international law is always part of the national legal system and is concerned about which national stipulations are to be used on a certain case with an international component. This means
the respective legal relations and living conditions. In Germany the private international Law is defined in article 3 paragraph 1 EGBGB (Palandt, M., 2006). In the Czech Republic it is defined in § 1 of the Act about the International Private and Procedural Law.

Historical development. When in the antique the first legal system evolved, there was no private international law. Everyone remained subordinated to his personal legal system, thus the legal system he was born and living in. Legal systems at that time were e.g. the Roman ius civile proprium, lex salica, or lex burgundionum. In Rome additionally was developed the ius gentium for foreigners and relations of Romans with foreigners. After the collapse of the Roman Empire a so called atomisation of the law took place in Europe. Each principal developed his own laws for his own territory (statute theory). With the upcoming of trade in the 11th and 12th century at first in Italy the evolved problem of which legal system was applicable for supra-regional contacts. The law school established in Bologna (Tocco, Accursius, Bartolus, Baldus) developed in the 12th century first attempts of a uniform private international law valid in all of Europe. The crucial advantage of this start-up was that it was developed „extra national“, because by lawyers from all over Europe and because of that it had a high acceptance. Thus in fact a uniform private international law was developed.

In the time of Savignys (1779 to 1861) the lawyers still proceeded on this universal base: always the same, international law system should be applicable, independent of the place, circumstances and judge, who would have to use this legal system. For this reason were developed international coordinated and determined competence and law distributions e.g. lex rei sitae or mobilia sequetur personam. Many of the principles of the law of that time were taken up to most codifications of the private international law (Kropholler, J., 1993). In the 19th and at the beginning of the 20th century the law development was seized by an increasing „nationalization“. The national states converted political views into their national legal systems and set off thereby every now and then the legal systems of their neighbours. The private international law could survive only by the fact that it was essentially limited to formal application rules and no material contents. In the meantime the historical roots and advances are once again coming into force e.g. in the European Union or by the Hague conference.

After World War Two the international private law was shaped by different developments of the two political systems. While the western part of Europe and concomitantly the western part of the Federal Republic of Germany developed their private international law on commonly known roots and principles, the eastern part of Europe tried to create a totally new legal system. Both blocks concentrated particularly on the development within the own territories. Nonetheless after the collapse of the eastern economic system the states of Central and Eastern Europe turned back to their historical roots.

German International Private Law. The German Private International Law is since the Reform Act about Obligation Law dated January 1st 2002 mainly part of the EGBGB (Carl, I., Franke, H., Ghassabeh, A., Hanke, F., 2005). All substantial circumstances are regulated in the Articles 3 to 46 EGBGB. Besides there are still some special legal stipulations, e.g. article 91 and following of the Bills of Exchange Act, which play however a less important role because they are concerned with very specific matters. Furthermore it is to be noted that international conventions, as far as they were implemented into the domestic legal system are to be used primarily. In this assignment I concentrate on the stipulations in the EGBGB as the main source for International Private Law in the German Legal System. The articles 3 to 46 of the EGBGB are divided into six sections, which will be investigated separately in the following sections.

Reference (articles 3 to 6 EGBGB). The section about the private international law is introduced as follows: “For circumstances with a connection to the legal system of a foreign country stipulate the following regulations which legal system is to be used (private international law)”. Because of the wording can be assumed that the regulations of the EGBGB are complete and terminal. In particular as far as the European law is concerned. Only in special, extraordinary cases are to be found special arrangements outside of the EGBGB. Thus in the conclusion it is also guaranteed that the private international law is not to be used in cases originating only within the country. The reference article 3 paragraph 2 EGBGB is also very important because it positions international-law contracts, as far as they are directly applicable, above the national legal system. Article 4
EGBGB defines when and how is to be referred to a foreign legal system. In case of a back-reference on the German law by a foreign legal stipulation, a further (back) reference will not happen (paragraph 1 sentence 2 EGBGB). Finally the German legal system is mandatory, if the application of the foreign legal system is not compatible with substantial principles of the German legal system (article 6 EGBGB).

Stipulations about natural persons and legal transactions (articles 7 to 12 EGBGB). In this section subjects of the International Private Law are defined. Mostly the Principle of the Country of Origin (article 7 EGBGB) applies. Nevertheless in special, individual cases the agreements and permits by the German civil registry office are necessary. Contracts are closed according to the legal system, which seems to be the base for the greater part of the subject matter of the contract. This applies particularly to the respective formal requirements (article 11 EGBGB).

Family law (articles 13 to 24 EGBGB). In the family law refers to the principle of the Country of Origin. Only in the case if this is impossible, the German legal system is applicable (article 13 EGBGB). Nevertheless a marriage in Germany must fulfill the valid German formal requirements. The legal system regarding the property can be selected by the partners according to the regulation of the article 15 EGBGB. An special but nonetheless special stipulation in the German law is the article 16 EGBGB, which refers to the stipulations about marriage in the Civil Code (book 4, articles 1297 to 1921). Divorces are likewise subject to German formal requirements, like e.g. the obligation to let a court decide about the divorce (article 17 EGBGB). The later inserted article 17b EGBGB stipulates the so called “Registered Life Partnership”. In this case the Principle of the Country of Origin applies also, whereby this depends on the fact if and how the life partnership is stipulated and allowed in the given country. The German stipulation refers to the Life Partnership Act. According to paragraph 4 the foreign stipulations do not reach farther than the ones of the German Civil Code.

Law of succession (articles 25 to 26 EGBGB). The law of succession is regulated according to the state in which the testator belonged in the moment of death. Last-willing orders must correspond to the requirements in form specified in article 26 EGBGB.

Obligations law (articles 27 to 42 EGBGB). The longest section is concerned with the obligations law. It is divided a section for contractual and one for except-contractual obligations. In accordance with article 27 EGBGB the principle of the free choice of the applicable legal system is stipulated. The parties involved are held to choose a legal system. Only if the parties didn’t agree on an applicable legal system according to article 28 EGBGB the law which seems to have the closest connections with the subject matter of the agreement will be used. In paragraph 2 the assumption is set up that the closest connection exists, in cases in which the achievement will be received. Most remarkable is the influence of the European law, since the articles 29 and 29a EGBGB were inserted with special stipulations for consumer contracts, which are a characteristic of the European law (Carl, I., Franke, H., Ghassabeh, A., Hanke, F., 2005). In particular in article 29a paragraph 4 EGBGB is referred to the some European guidelines. The non-contractual obligations are stipulated in the articles 38 to 42 EGBGB. The regulation covers unjustified enrichment (article 38 EGBGB), agency without necessity (article 39 EGBGB) and tortuous law (article 40 EGBGB) Property law (articles 43 to 46 EGBGB). In the case of property law the legal system of the state in which the property is situated (article 43 paragraph 1 EGBGB). On the other hand in individual cases the law system of that state is to be used, to which the property has the closest connection (article 46 EGBGB). Thus it is always at first to be examined whether a special relationship exists and whether the principle of article 43 EGBGB is to be used. For large movable properties, like airplanes, ships and trains article 45 EGBGB stipulates special rules.

Czech Codification. The basis of the Czech Codification is formed by the Act about the International Private and Procedural Law dated 01.04.1964 in its current form (hereafter only ZMPS). As already to be seen on the year of its coming into force; the Act was made in the “communist time”. It is remarkable that the Act still uses the communist terminology; however this does not change the material content of the act. E.g. thus even if the law speaks of “Czechoslovakia”, the Czech republic alongside with the Slovak Republic as the legal successors are meant so in the end the terminologies has no practical relevance. Beyond that there were some significant
changes of the law in the past years and in the years of the harmonization with the European law.

Introduction (articles 1 and 2 ZMPS). The Act is introduced by the specification on which legal systems the civil law, family law, industrial law and other law systems with international connection depend on, as well as which legal status foreigners have and how the Czech legal organs have to deal with these relations. Besides it is specified that international contracts have priority. The definition of the Private International Law is thus reduced to the statement of “fields of law with foreign connections”. Part I: Collision regulations and the legal status of foreigners (articles 3 to 36 ZMPS). In the section over collision regulations for the respective right areas in detail regulations are made and specified legal status by foreigners. First section: Collision regulations (articles 3 to 31 ZMPS). For every single person generally is applicable the legal system of his home country, except this act puts something else into action (article 3ZMPS). As far as nothing is fixed applies the legal system with the most connection to the specific topic, unless it is a matter of formal conditions for effectiveness, which apply the legal system of the state where they come into effect.

Property law (articles 5 to 8 ZMPS). The property law and in particular the real estate law depends on the legal system of the state the property is located in. As far as the legal status of a property is determined over a register, it depends of the state in which the register is located.

Obligation Law (articles 9 to 15 ZMPS) The obligation law stipulates that the parties can agree on the legal system which will be used (article 9 ZMPS). If the involved parties did not agree upon a legal system, will the law with the most connection to the subject matter will be applied (article 10 paragraph 1 ZMPS). In the second paragraph the article 10 ZMPS enumerates types of contract and defines the legal system to be used. In detail this are the following contract types:

- Sales contract
- Real estate contracts
- Transport contracts
- Insurance contracts
- Order and instruction
- Representation
- Mutual bilateral contracts

Other contracts depend on the legal system of the country, in which the contracting parties have their domicile. As far as this is not possible according to the legal system of the country the contract was closed in the Czech Republic. Stipulations about Contracts concerned with insurance law make a substantial part of this section (articles 10a to 11e ZMPS). Also detailed definitions for different types of insurances with several possible events are mentioned. The section closes with regulations about periods of limitation and payment of damages (articles 13 and 15 ZMPS). Labour law (article 16 ZMPS) The most important principle of the labour law is that always the legal system of the state in which the labour is accomplished is to be applied. In case of a temporary employment abroad, applies the legal system of the one state, in which the adjusting organization has currently its seat. In the 2nd paragraph are special stipulations and rules for employees of railway companies or transport enterprises. The applicable law in airplanes and ships depend on where they are registered (Abrhám, J., Horváthová, Z., 2005). Law of succession (articles 17 and 18 ZMPS). In accordance with article 17 ZMPS the legal system of the one state applies, whose nationality the deceased had. This, in accordance with article 18 paragraph 1 ZMPS, applies also to whether he got a last will and testament. However article 18 paragraph 1 ZMPS stipulates that the formal questions of the creation of the testament depends on the legal system of the state, in which the deceased had his domicile. Family law (articles 19 to 31 ZMPS) This section is occupied with the family relations of the married partners to each other (articles 19 to 22 ZMPS), and of parents to their children (articles 23 to 27 ZMPS), as well as their support (articles 38 to 31 ZMPS). Regarding the family law the basic principle is that the legal system of the state applies in which the involved persons have their residence. This applies to marriage, divorce and explanation of the ineffectiveness of a marriage (articles 19 and 22 ZMPS) and in particular also to the financial regulations (article 20 ZMPS). However, again for the formal act itself, the law of the place of residence applies.
In case of parenthood the statements of the Czech law apply if the child is born in Czechoslovakia. The same applies in case of requirements on child maintenance and the acknowledgment of the paternity.

Second section: The Legal status of foreigners (articles 32 to 33 ZMPS). If nothing else is agreed on, foreigners have the same rights and obligations as citizens of the Czech Republic regarding their personal and vested titles (article 32 paragraph 1 ZMPS). As far as citizens of Czechoslovakia are treated worse in another state, this can lead to restrictions. The same is stipulated for legal entities. A double or missing nationality is regulated in article 33 ZMPS. Thus the legal system of Czechoslovakia applies, if the person has this nationality. In other cases the recent (thus the latter) nationality applies. Regarding persons without a nationality the legal system of their last domicile applies and only if these have none or nothing can be determined the Czech legal system. Third section: Common regulations (articles 32 to 36 ZMPS). There are some common regulations; in particularly if in the other state are several different legal system valid. As far as a regulation continues to refer back to the Czech law, then it must not be referred back. Finally the Czech laws must not be avoided by the use of foreign law, especially if the foreign regulations offend the public order of Czechoslovakia. Part II: International procedural law (articles 37 to 70 ZMPS). The procedural law is stipulated in detail in the ZMPS. The second part is divided into four sections:

1. Competences of Czechoslovakian judicial organs (articles 37 to 47 ZMPS)
2. Procedural specifications (articles 48 to 62 ZMPS)
3. Acknowledgment and enforcement of foreign decisions (articles 63 to 68 ZMPS)
4. Special regulations for the acknowledgment and enforcement of certain foreign decisions (articles 68a to 68c ZMPS)

Part III: Final clauses (articles 69 to 70 ZMPS). The Act replaces the Act 48/1948 and is effective since April 1st 1964.

3. Comparisons and discussions

Co-operation in case of civil law within the European Union includes among others the harmonization of the collision rules. Thus is to be assumed that already now, and the legal systems are as far as possible harmonized. This assumption seems to be right. Comparing the two implementations, at first is to be realized that the Czech legislator created a single one Act concerned with the International Private Law. In contrast the German legislator regulated the International Private Law in a separate section of the EGBGB. The reason for this decision is to be seen in the fact that the collision rules of the International Private Law are treated only as “supporting rules” (Palandt, M., 2006). Regarding the structure of the two acts a clear difference is obvious: The German act includes at the most collision regulations. In the Czech ZMPS the collision regulations are only one single part of the whole act, a further part is concerned with international procedural law. The international procedural law is not codified in Germany but is included into the general rules of procedure the “Zivilprozessordnung” (code of civil procedure) (Carl, I., Franke, H., Ghassabeh, A., Hanke, F., 2005). Thus a comparison of the regulations may only be performed in the part concerned with the collision regulations.

The two acts begin with the definitions of international private law, which does not differ. Also the general references are analogue, especially in both laws is stipulated that after a back reference from foreign law no further reference takes action. Both acts respect the main principle of the International Private Law that contracts are closed in accordance with the legal system, which the main subject matter of the contract is, and is stipulated in both acts likewise, although in different places throughout the codes. Subsequently, the fields of law are in detail stipulated. In succession law and property law are no remarkable differences, the acts stipulates all circumstances similarly. In case of the family law are some contents like marriage, divorce, child shank also equivalently stipulated. However a substantial difference consists in the fact that in the Czech legal system everything is stipulated very in detail. In contrast the German regulations are very briefly. Nonetheless the EGBGB in this connection refers constantly to the BGB (Palandt, M., 2006) and the general system of the family law. As a result thus are no major differences. At last were taken up to the EGBGB stipulations about the registered life partnership. The registered life partnership in Germany is treated in many cases equally to the marriage,
since this is however not in every other country, the German legislator decided to stipulate this expressively.

An appropriate regulation is missing in the Czech law. The stipulations about different industries are only mentioned in the Czech ZMPS. The German collision law concerning the industrial law was stipulated directly within the Labour Code. The obligation law takes the largest part in both acts. This is however not surprising, since in practice this concerns the most. Both act repeat the general rule that the legal system can be chosen or depends on the core matter of the legal relation. The Czech legal system begins with an enumeration of types of contracts; every contract is discussed in detail. At this the ZMPS is very exact. On the other hand the consumer contracts which are stipulated in detail in the German EGBGB are missing completely. Nonetheless the case of the application of both acts are no major differences.

Conclusions

As suggested by Czech scholars of law, at last four theories can be identified in the globalization of Czech law literature related to personal security. First are two competing theories that focus on it primarily as an economic reality. To this camp belongs the famous perspective of world systems theory that is associated with the work of scholars. Primarily focused on the worldwide diffusion of the capitalist market from the core of world society to its periphery, this perspective attributes relatively little attention to law because, in line with a general left-wing orientation, it assumes that global law is not sufficiently institutionalized to play a significant role in the mechanisms that drive the world system. Instead, the focus is on economic developments that are controlled by multinational companies and states (for instance, the present spread of neoliberal capitalism under direction of the right-wing orientation. Contrasting with this perspective is an approach of Czech law and economic development that, in the wake of the fall of communism in Eastern Europe, emphasizes the role played by private actors in building a new global order by reliance on the law as an instrument of change, specifically in the form of deregulation. The logic behind this theory is that laws of economic liberation and stimulation produce economic growth across nations. The Czech law and economic development perspective relies on a Weberian approach to bring out the central role played by law in shaping global economic processes. As an extension of sociology’s long-standing tradition of work on the relation between law and economy, Czech scholarship in this area has especially focused on the formation of new global governance regimes, typically involving a variety of public and private agencies that are set up in response to the regulatory deficit that is created because the global spread of the market far exceeds the range of the regulatory mechanisms that are in place at the level of national states. Research in the theory of law from this perspective has focused on global developments in the regulation of business practices, such as bankruptcy reform. A second set of theories on globalization and law, which is likewise divided between a conflict-theoretical and a consensually oriented perspective, focuses on globalization primarily in cultural terms. First, postcolonial theories conceive of the globalization of law in terms of a hegemonic spread of the rule of law that reproduces a juxtaposition between the so-called civilized and uncivilized world. The universality and transferability of modern systems of European law are argued to rest on claims of a global modernization discourse that continues to give premium to centre-European of law despite the creation of new demarcations lines such as between (the rich and civilized) North and (the poor and as yet uncivilized) South. Europe unlike its economic counterpart in world systems theory, postcolonial perspectives are less interested in the sources of global law and instead focus on the impact of the transfer of the logic of European law into the periphery. Second, a contrasting cultural perspective is offered by world polity theorists who argue that the evolution of modern legal systems across the world is characterized by a strong convergence that indicates the formation of a world polity, which (in line with neo-institutionalist theory) functions as a reservoir of cognitive schemes. The schemes of the world polity include conceptions of sovereignty and universalistic principles that are transmitted into different national legal systems through the activities of international governmental and nongovernmental organizations oriented at enforcing compliance with global normative standards. Theoretical work on the diffusion of laws banning female genital cutting provides an interesting case in the world polity approach.
References


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