CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE

2017
Vol. 21, No. 5

Articles

ISSN 2082-8500

Publishing House:
Instytut Naukowo-Wydawniczy „SPATIUM”
ul. 26 Czerwca 68, 26-600 Radom,
tel. 48 369 80 74, fax 48 369 80 75
e-mail: wydawnictwo@inw-spatium.pl
http://www.inw-spatium.pl

Printing House:
Drukarnia Bookpress.eu,
ul. Struga 2, 10-270 Olsztyn

Nakład do 200 egz.

Contents

Articles

Energy security, modernity and ecology

Built in Enea Producing the energy B11 block will be the biggest and the most efficient manufacturing unit heated with the hard coal in the history of Polish energetics. It will be also the most environmental energy bloc for hard coal in our country.

In 2007 Enea Producing (Enea Wytwarzanie) as the Power Plant at Kozienice in Świerże Górne became a member of ENEA Group. The company has got 10 high-efficient energy blocs of the total maximum capacity of 2925 MW, which produce almost 8 per cent of the electric energy generated in Poland. Simultaneously Group's the biggest investment is conducted - construction of the modern, eleventh block with gross output of 1075 MW.
Conceptual work on the project started in 2008, however the first construction works preparing the ground for the structural work started one year later. In 2012 a contract with the Consortium of Contractors – Mitsubishi Hitachi Power Systems Europe GmbH and Polimex-Mostostal S.A. for the implementation of an investment project was signed.

A huge structure

In 2013-2014 the contractor conducted building-assembly works for the main technological objects of the new block. Performing these works enabled to start assembly of devices and in 2015.
At the peak of the structure there were 3 thousand workers involved in the construction. In 2016 start-up works of the individual technological systems began, and also with the positive result a pressure test on the boiler was conducted, in order to realize this over 60 thousand welded connections were made. Completing this task opened wide fronts of works in support systems of the boiler and electric and automations installation industries. In June 2017 start-up tests of the block started.

The key investment

The new Block 11 of the Nowy blok nr 11 Power Plant at Kozienice is not only the key investment for the Enea Group but also for the whole Polish energetic. The conducted project is characterized by applying the latest technological solutions of the boiler, the turbine and systems guaranteeing reduction of pollutant emissions to the environment. Thanks to the high-efficiency of generating the electric energy at the level of 45.6% and a high availability on the level of over 92%, it will be biggest and simultaneously the most efficient manufacturing unit heated with the hard coal in the history of domestic energetics. The Block No. 11 will increase manufacturing capabilities of the power plant in Świerże Górne to the level of 4 thousand MW, which will allow Enea Producing to reach 13% of the market share in the electricity production.
The new Energy Block will become also the most environmental block in Poland – It has all required installations reducing emission of pollutants and will fulfil all the requirements of the EU in scope of Best Available Techniques. Applied solutions allow for total development of combustion by-products (plaster, ash, cinder), development of sewers in internal technological systems, there is also a possibility of building the CCS installation in the future, and thus applying the process which consists in detaching and detecting the carbon dioxide from the combustion gases in order to reduce its emission to the atmosphere (CCS ready status).
Monitoring of construction of the block reached the level of 98% at the end of May 2017.

Central European Review of Economics & Finance
Vol. 21, No. 5 (2017), pp. 7–23.

Tadeusz Dyr[1], Karolina Ziółkowska[2], Agata Jaździk-Osmólska[3], Małgorzata Kozłowska[4]

ECONOMIC SAFETY ASPECTS OF THE ROAD TRAFFIC IN POLAND

Road accidents are generating economic and public high costs. They include: losses resulting from the long-lasting or temporary impossibility of creating GDP, expenses on the treatment and rehabilitation of people injured in the accidents, costs of emergency services involvment, payment of compensations and benefits, financial losses or emotional suffering of the accidents' victims and perpetrators' relatives, leading to reduce their economic activity. Statistical data presented in the point out to the high risk of road accidents. Also causes of unsatisfactory level of the road safety improvement in Poland were presented.

JEL Classification Codes: **R41**, **I38.**

Keywords: accidents, social cost, EU transport policy.

Introduction

The rapid development of the automotive industry generates – apart from benefits, associated with the mobility and the economy growth – high economic and public costs. These costs result mainly from the negative influence of the road transport to the natural environment, including those lead-

[1] Associate Professor, Ph.D., K. Pulaski University of Technology and Humanities in Radom, Faculty of Economic and Legal Sciences.

[2] Assistant Professor, Ph.D., University of Social Sciences in Lodz.

[3] MSc, Road and Bridge Research Institute, M.A., Ph.D. student, K. Pulaski University of Technology and Humanities in Radom, Faculty of Economic and Legal Sciences.

[4] M.A., Ph.D. student, K. Pulaski University of Technology and Humanities in Radom, Faculty of Economic and Legal Sciences.

ing to the climate change, congestion and high-risk of road accidents. All over the world every day as a result of road events 140 thousand people are injured in road accidents. Over 3 thousand die, and about 15 thousand will never fully recover (World Health Organization, 2015). The increase in the risk of road accidents caused the need to define, unknown 30 years ago, a new category of mortality caused by so-called external factors, that include antisocial individual's behavior.

In 1990 the road traffic was on 9th place amongst illnesses' causes, complaint and injuries in the global scale. Last data from 2013 is put the road accidents on 5th place amongst causes of premature deaths and disability, and it is predicted that up to 2020 it can even be the 3rd place in this classification (Murray and Lopez, 1996).

Noticing economic and social negative effects of accidents, the European Commission undertakes numerous activities aimed at improvement in the road safety. In the White Paper from 2001 (COM 370. 2001) the European Commission acknowledged that to 2010 the number of road accident victims should be reduce by half. For the achievement of this aim implementing instruments in the scope of penalties harmonization and new technologies promotion was suggested.

In the road safety improvement program from 2010 (COM 389. 2010) a need to approach the highest road safety standards in entire Europe was assumed, which is a reduction of road fatalities by the half until 2020. In order to reach that objective an integrated approach to the road safety including improving an educational system and training road users, improvement in enforcing traffic regulations, increasing the safety of the road infrastructure and vehicles, propagating use of modern technologies, improvement of services in emergencies, post-injuries services and protection of road users peculiarly exposed to accidents (motorcyclists, moped riders, cyclists and pedestrians) was suggested.

Considering presented premises, as the crucial objective of the article a presentation of economic and public road safety aspects an evaluation of the security level – measured by the number of accident and their effects – in the European Union and in Poland were accepted. The article also draws attention to causes of the unsatisfying level of road safety improvement in Poland.

Theoretical aspects of the road safety

Along with the demographic, economic and social development dominating standards of morbidity and mortalities are changing. A successful attempt to explain them is a theory of the epidemiological proceeding (Wróblewska, 2009). This theory for the first time was described in 1971 by Abdela R. Omrana (Omran, 1971). Analysis results of the mortality, profiles of illnesses and social-economic processes changes which were observed amongst industrialised countries since the 18th century were its base. According to this theory populations experience three consecutive phases: epidemic and hunger (when the mortality is kept on the very high level), reduction in incidence of infectious diseases (when life expectancy grows up to nearly 50 years) and phase of degenerative diseases, (during which the pace of the drop in mortality is weakening, and together with the decrease of mortality caused by infectious diseasesas there is an increase in the mortality caused by chronic diseases).

This theory has many alterations and extensions. Within its scope a new category of mortalities caused by external causes of deaths and deaths connected to antisocial behaviors, including those resulting from communications accidents was identified (Rogers and Hackenberg, 1987).

Current problem of a higher mortality in the world is assigned to occurrence of the centre stage of epidemiological proceeding, called hybrid era. At this stage countries are increasing their level of development, burdens of infectious diseases are decreasing and a life expectancy is increasing. On the other hand, the current transitional phase in the complicated way affects burden of other disease and disability. In this phase the morbidity and mortality are characterized by a great participation of degenerative and civilization diseases transformations associated with the social changes process, as well as resulting from individual behaviours, including destructive lifestyle orientated at sensual pleasures, e.g. smoking, alcohol and drug consumption, or speeding.

Essential antisocial behaviour affecting the level of road safety is drink driving. Examinations confirm that there is a correlation between the blood alcohol level, and the level of risk of an accident. In case of blood alcohol level by 0.8 mg/ml (it is permissible value in some states) the risk of an accident is 2.7 times higher than at the sober driver. The alcoholic strength of 1.5 mg/ml causes, that the risk of the accident is 22 times higher than at sober drivers (fig. 1). Alcohol has also a significant influence on accidents' effects. Risk of fatal caused by drivers, whose blood alcohol level amounts to 1.5 mg/ml is 200 times higher than at sober drivers (SafetyNet, 2009). In case of BAC above 0.05% the risk function of the accident has exponential character (Krüger and Vollrath, 2004). The risk increase becomes more distinct after exceeding the level of 0.1% (Blomberg *et al.*, 2009) Laboratory studies indicate that impairment in critical driving functions begins at low BACs and that most subjects are significantly impaired at 0.05% BAC (Fell and Voas, 2006).

The alcohol consumption is particularly a crucial factor of accidents' risk in the group of young drivers. The relative risk of the accident with the fatal effect at the blood alcohol level of 0.5 mg/ml of driver with age of 16–19 is almost 60 times higher than at the sober driver with age of 30 (Keall, Frith and Patterson, 2004). Simultaneously the share of accidents after the alcohol consumption is particularly high in the group of young drivers. After passing the age border of 35, the participation of accidents caused by drunk-drivers is considerably decreasing (Abdel-Aty and Abdelwahab, 2000).

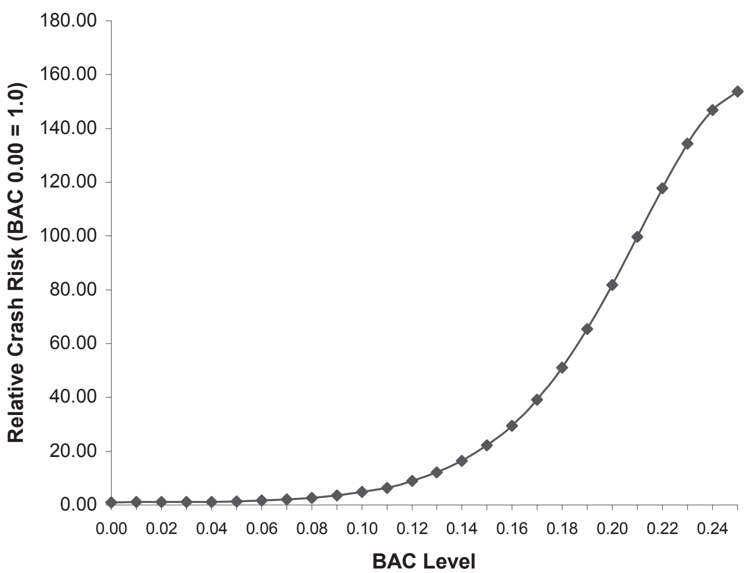

Figure 1. **Alcohol influence to the risk of accidents**

Source: Compton *et al.*, 2002.

The relatively high participation of accidents in the group of young drivers results from their lower ability of avoiding accidents and higher approval of risky behaviors on the road. Young drivers who choose to drink and to drive after drinking probably have pre-existing characteristics that predisposed them to risk taking and crash involvement apart from any increased vulnerability to alcohol impairment (Peck *et al*., 2008)

Drugs and some medicines consumption is the factors increasing the risk of accidents. Particularly negative effects on the road safety has the combination of alcohol and drugs (Fell and Voas, 2009). Examinations results conducted in Netherlands and France show, that even little alcohol consumption (blood content of 0.5–0.8 mlg/ml) at simultaneous drugs consumption increases the indicator of the relative risk of accidents of about 50% (Mathijssen and Houwing, 2005).

The hybrid era carries also other essential problem from the road safety point of view – ageing of the society. Elderly people are less vigilant and efficient than younger ones. It leads towards decresing the risk of road accidents. The main risk factors in the group of older drivers are: wrong evaluation of a situation on the road, wrong estimation of the distance to the preceding vehicle and the speed of other vehicles. That may lead to dangerous maneuvers. Also a risk of fainting or falling asleep while driving increases (Cicchino and McCartt, 2015).

Growing participation of deaths as a result of antisocial behaviors in the road traffic which end with accidents, are a distinctive feature of the hybrid era. The development of pathologies in the road traffic constitutes the more and more considerable social and economic problem. It is estimated, that on average for every country the annual share of social costs of road accidents fluctuates on the level from 1.5 to even 2.5% of its GDP. Globally, annual costs associated with road accidents' victims in the world amount about 520 billion USD.

Road accidents in the European Union and their effects

Transport is a crucial factor for fulfilling essential liberties of the European Union, i.e. free movement, the freedom to work or study and the free movement of goods and services. Therefore improvement of the transport services' quality, including personal safety and reducing the number of accidents and threats to health, is a priority of the transport policy (COM 144. 2009). Adopting this priority is a result of a great number of road accidents in Member States of the EU, generating high economic, personal and financial costs. They are mainly connected with the need of involvement of emergency services, police, fire fighters and others into providing assistance to the injured, expenses on the treatment, the rehabilitation and the psychological help, temporary or permanent inability of creating the GDP, costs of judicial proceedings or the payment of compensations and social benefits. (Jaździk-Osmólska, 2015).

Action taken by the European Commission and the individual EU member states in the scope of improvement in the road safety are bring measurable results. Number of killed in road accidents in UE-28 reduced from 57.1 thousand in 2000 to 31.5 thousand in 2010. (fig. 2), i.e. 44.8%. In this period the total number of accidents decreased from 1 461. 7 thousand to 1 130. 4 thousand, i.e. 22.6%, and the number of injured in the accidents from 1 983.5 thousand to 1 502. 2 thousand, i.e. 24.3% (*Road safety evolution in EU*, 2016). Despite existing progress in the road safety improvement in Europe, the goal set by 2010 wasn't fully achieved. For the complete realization of stated objective that is cutting by half the number of fatalities, the number of road deaths in 2010 should be reduced almost by 3 thousand.

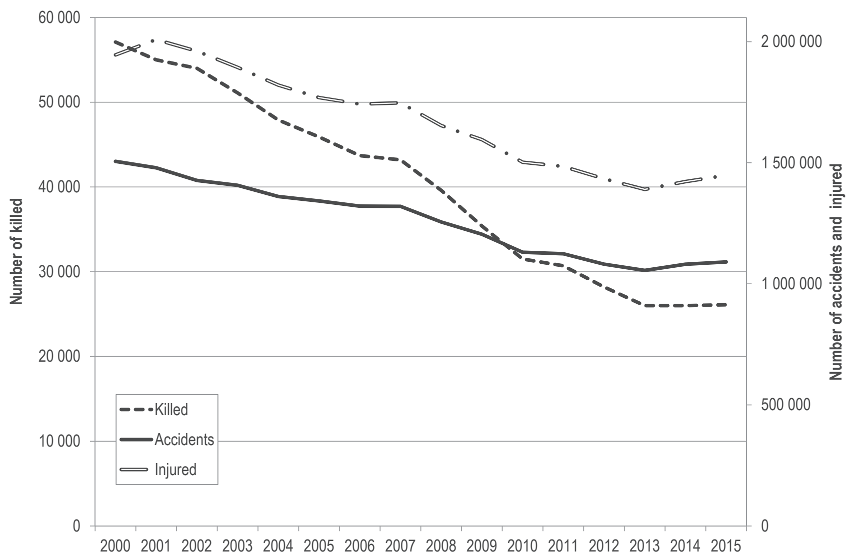

Figure 2. Number of accidents and i fatalities in UE-28

Source: own study on the basis (*Road safety evolution in EU*, 2016).

After 2010 dynamics of the road safety improvement has considerably reduced in the European Union. A considerable increase in the number of accidents and injured in 2014 and 2015 and fatalities in 2015 is a worrying phenomenon. In 2015 there were 1 090.3 thousand accidents, i.e. by 35 thousand more than in 2013 (increase of 3.3%). In these accidents 1 448. 1 thousand people were injured, i.e. about 58.3 thousand more than in 2013 (increase of 4.2%). The number of fatalities increased at that time of 100 people, i.e. 0.4%. Such trends are an essential threat for achieving goals for the next decade, i.e. reducing the number of road deaths by 50%. These trends were presented in figure 3.

Young people are most often victims of accidents. In 2014 (the latest available data) almost 3.6 thousand people in age 18–24 were killed in road accidents in UE-28. It constituted 14% of the total number of killed in road accidents (fig 4). It should be noted that road accidents are the most frequent cause of death in this age group (fig. 5).

In the European Union there is a high spatial diversity of the risk of being involved in a fatal accident. Poland, in spite of the road safety improvement in recent years, is ranked among the group of countries with the high risk indicator, expressed by the number of fatalities per 1 million residents (fig. 6). The relative improvement in the safety in Poland is much higher than UE-28 average (fig. 7).

Figure 3. Goal accomplishment of reducing the number of fatalities in road accidents in UE-28 in the second decade of XXI century

Source: own study on the basis (*Road safety evolution in E*U, 2016).

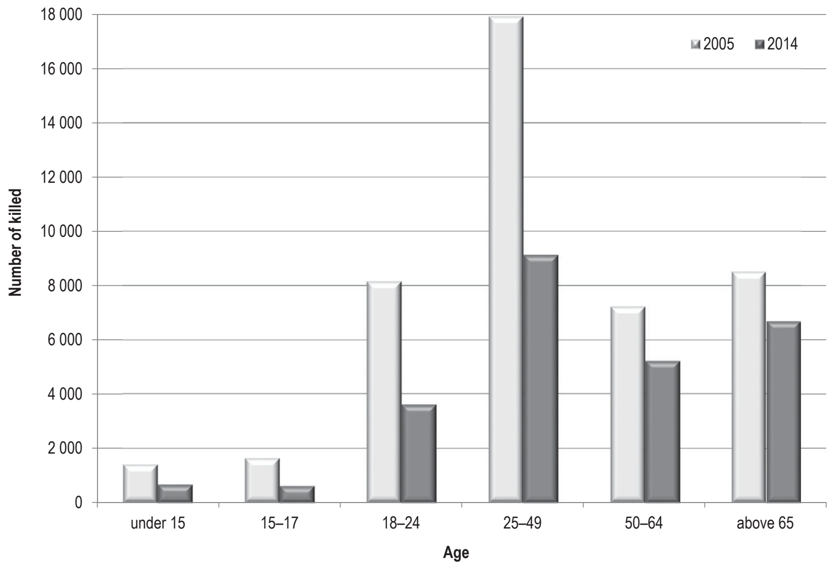

Figure 4. **Number of fatalities in road accidents by age**

Source: own study on the basis (*Annual Accident Report 2016*, 2016).

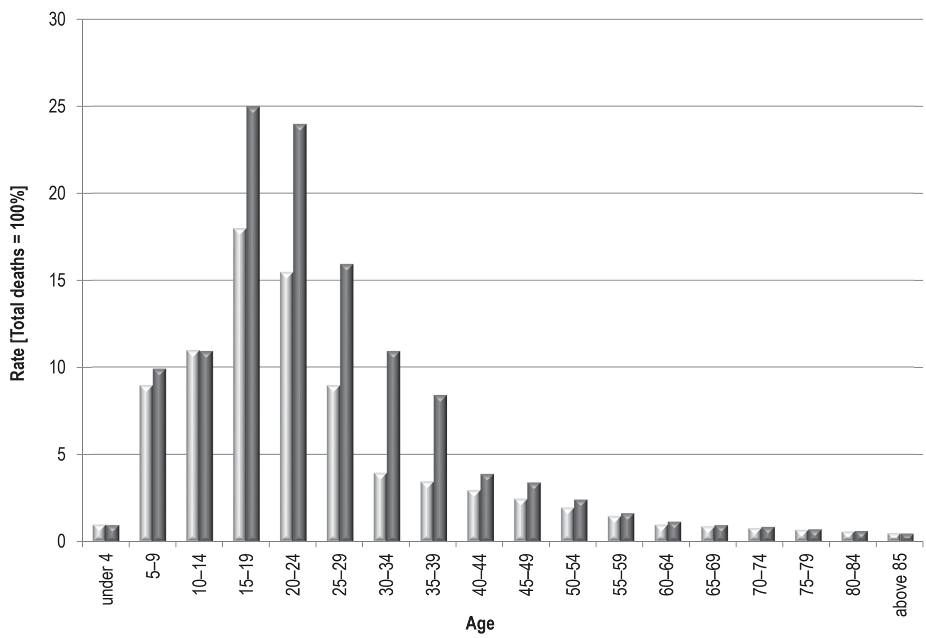

Figure 5. **Participation of deaths caused by road accidents according to age groups**

Source: own study on the basis (*Traffic Safety Basic Facts 2016*, 2016).

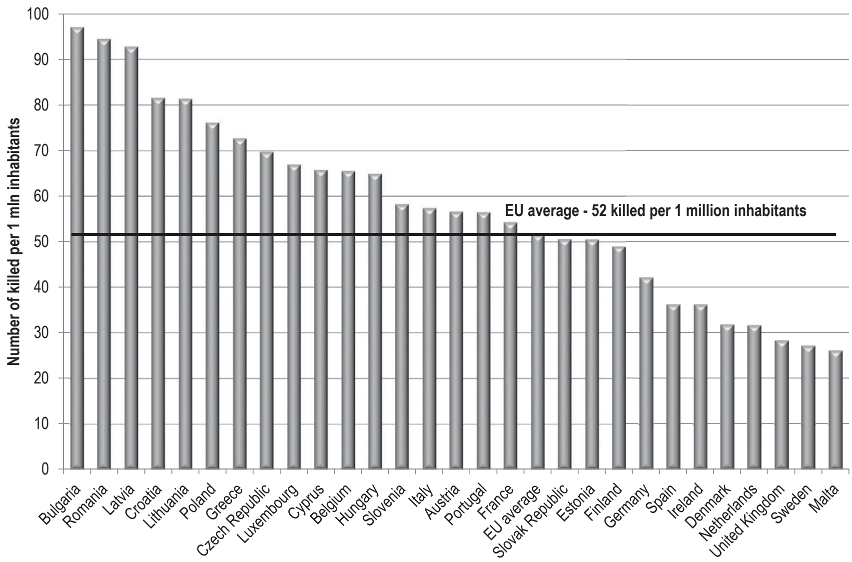

Figure 6. The road fatalities indicator per 1 million residents

Source: own study on the basis (*Transport in Figures. Statistical Pocketbook 2016*, 2016).

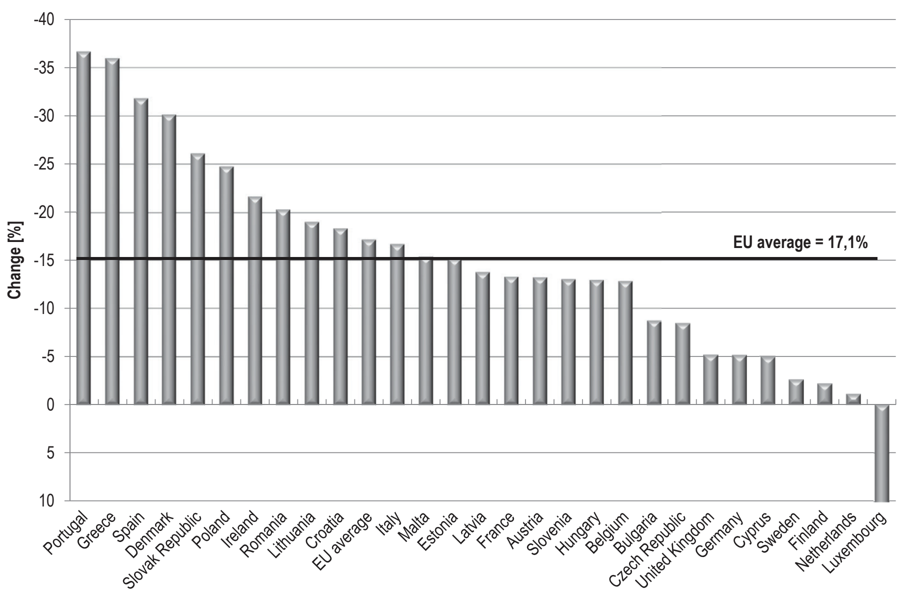

Figure 7. Change in the number of fatal road accidents in 2015 over the year 2010.

Source: own study on the basis (*Transport in Figures. Statistical Pocketbook 2016*, 2016).

Countries located in the Centre and Eastern Europe are characterized by a much lower safty level than the European Union average. It results mainly from adjustment of the infrastructure to the current road traffic level The low density of dual carriageways and motorways causes, that the considerable part of the long-distance movement is held along single carriageways, where the accident's risk is much higher than on dual carriageways. On many roads there is a lack of city ring roads and non-collision crossroads. In consequence that may lead to increased prevalence of accidents. Also a technical condition of vehicles is a crucial factor. In countries of Centre and Eastern Europe people drive cars that were reversed from the movement in Western Europe. Many of them are post-accident vehicles, also not-equiped into devices and systems improving the ride safety, e.g. ABS (Anti-Lock Braking System), Bass (Brake Assist System), EBD (Electronic Brakeforce Distribution), ESP (Electronic Stability Program), on-track car position detection system in ‘blind spot' of the mirror, Automatic Traction Control at starting, lane departure warning system, breathalyzer blocking the possibility of starting the car by the drunk driver etc.

In countries of Centre and Eastern Europe a low level of social capital is a crucial factor of higher level of road accidents. The low level of the knowledge on road safety and value system of many drivers that leads towards disregarding the risk, increases the number of road accidents.

Statistical data confirm that men are more often the accidents' victims. The most accidents happen in periods of of intense road traffic, mainly during holiday months (July, August). Almost a half of fatalities are drivers and passengers of passenger cars. Paradoxically, the most "favorable" conditions for road accidents are at good weather conditions (Raczyńska-Buława, 2016). Vehicles are then moving with higher speed, and drivers are more willing to take risky maneuvers.

Presented statistical data confirm the effectiveness of taken activity aimed at the improvement of the road safety. However the risk of accidents in the EU Member States is high.

Road accidents in Poland and their effects

In spite of appearing of the number of negative factors that may lead to increase the risks of accident, the safety level on Polish roads is improving. It is the effect of many actions taken through the state institutions, research institutions, non-governmental organizations, media, business entities and private people. However the safety level on Polish roads is still relatively low.

In 2016 in more than 22.6 thousand accidents 3 026 people were killed, and 40.8 thousand were injured. It was the first year in years, when there was an increase both in the number of accidents and their victims.

Table 1. Number of road accidents in Poland and their effects in 2000–2016

Year	Accidents		Killed		Injured	
	Total	2006 = 100%	Total	2006 = 100%	Total	2006 = 100%
2000	57 331	100.0	6 294	100.0	71 638	100.0
2001	53 799	93.8	5 534	87.9	68 194	95.2
2002	53 559	93.4	5 827	92.6	67 498	94.2
2003	51 078	89.1	5 640	89.6	63 900	89.2
2004	51 069	89.1	5 712	90.8	64 661	90.3
2005	48 100	83.9	5 444	86.5	61 191	85.4
2006	46 876	81.8	5 243	83.3	59 123	82.5
2007	49 536	86.4	5 583	88.7	63 224	88.3
2008	49 054	85.6	5 437	86.4	62 097	86.7
2009	44 196	77.1	4 572	72.6	56 046	78.2
2010	38 832	67.7	3 907	62.1	48 952	68.3
2011	40 065	69.9	4 189	66.6	49 501	69.1
2012	37 046	64.6	3 571	56.7	45 792	63.9
2013	35 847	62.5	3 357	53.3	44 059	61.5
2014	34 970	61.0	3 202	50.9	42 545	59.4
2015	32 967	57.5	2 938	46.7	39 778	55.5
2016	33 664	58.7	3 026	48.1	40 766	56.9

Source: own study on the basis (*Wypadki drogowe w Polsce w 2016 roku*, 2017).

For achievement of EU aims in reduction the number of fatalities of road accidents, the number of people killed on roads in 2010 should not be higher than 3 147. This value was exceeded by 760 people, i.e. 24.2%. In next years this aim also wasn't achieved (fig. 8).

The risk of the accident increases, as already stated, in case of drink-driving or driving after drugs consumption. The number of accident with the participation of drink-drivers decreased from 4.5 thousand in 2010 up to the less than 3 thousand in 2016 (fig. 9), i.e. by 34%. At that time the number of fatalities in road accidents was reduced by 15%, and the injured by 39%. Police activities have a significant influence on the indicators' fall. In 2010–2013 as a result of conducted inspections the Police eliminated c 140 thousand drink-drivers. In subsequent years this number, according to statistics of Police Headquarters, there was a considerable reduction – from 74 thousand in 2014 to 60 thousand in 2016. However the detailed statistical analysis show that the risk of the accident with the participation of the drunk-driver or drivers after drugs consumption is much higher than in case of sober road users (Płachecka, 2016).

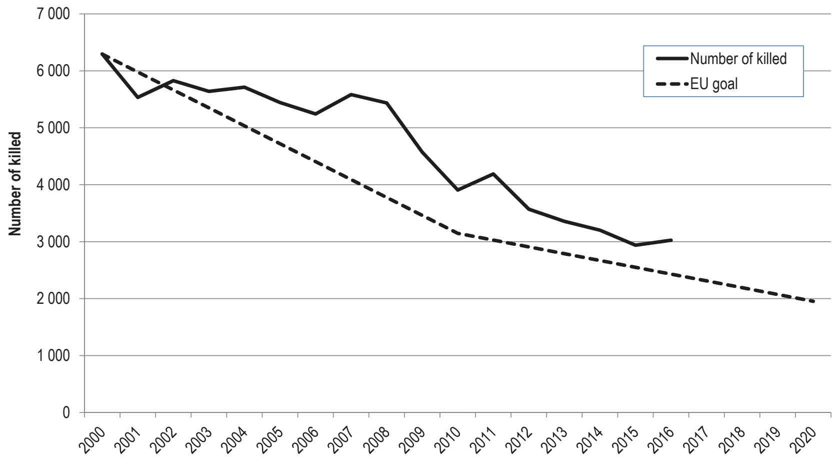

Figure 8. Changes in the number of fatal road accidents in Poland related to the EU aimy

Source: own study on the basis (*Wypadki drogowe w Polsce w 2016 roku*, 2017).

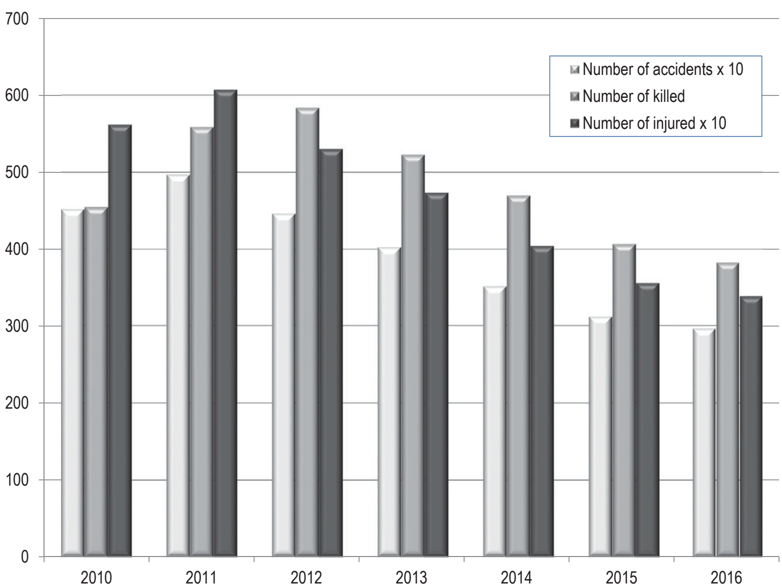

Figure 9. Accidents caused by drunk drivers

Source: own study on the basis (*Wypadki drogowe w Polsce w 2016 roku*, 2017).

In 2016 in Poland there were 2 973 accidents with children in age of 0–14. (tab. 2). In these accidents 72 children were killed and 3 260 were injured. In relations to year 2010 the number of accidents with children decreased by 29.9%, number of killed decrease by 35.7%, and injured by 28.9%.

Table 2. Road accidents with children in age of 0–14 in 2007–2016

Year	Accidents		Killed		Injured	
	Total	2007 = 100%	Total	2007 = 100%	Total	2007 = 100%
2010	4 239	100.0	112	100.0	4 586	100.0
2011	4 077	96.2	102	91.1	4 414	96.2
2012	3 679	86.8	89	79.5	3 945	86.0
2013	3 454	81.5	90	80.4	3 747	81.7
2014	3 210	75.7	80	71.4	3 509	76.5
2015	2 820	66.5	70	62.5	3 078	67.1
2016	2 973	70.1	72	64.3	3 260	71.1

Source: own study on the basis (*Wypadki drogowe w Polsce w 2016 roku*, 2017).

The vast majority of all victims amongst children in age up to 6 years are passengers (c 72%). In older age groups passengers are c 45% of accidents' victims. Along with the age increase a participation of pedestrians and drivers accidents' victims increases. High share kids-passengers as accidents' victims shows that the youngest are exposed to the loss of life or health mainly because of adults' mistakes (Płachecka, 2016).

In spite of the significant improvement of the road safety, it isn't possible to recognize the existing situation satisfactory. A significant decrease in the number of killed or injured in road accidents contributed e.g.:
- modernization and development of the road infrastructure,
- development of the road traffic supervision system,
- improvement in the effectiveness of emergency and preventive services ,
- management of the road safety system.

The road safety level depends mainly on the Police effectiveness. This includes issues like.:
- organising, supervising and execution of preventive tasks for the road safety,
- participation of the Police units in all-country and regional preventive programmes,
- increase in the number of police officers on duty directly on the road.

A crucial factor of reducing the number of fatalities in road accidents have rescue actions towards the injured taken are by units operating as part of the National Fire and Rescue System and National Emergency Medical Services. As the number of these units is constantly rising a time of arrival to the accident is shortening. Also a number of cases, in which firefighters treat injured people in accidents is increasing (until, when the National Medical Rescue units will arrive at the place of incident) – it means that National Medical Rescue units are becoming ever better prepared for the help in this regard.

A crucial element for improving road safety has the National Road Safety Programme for years 2013–2020. This document defines purposes and directions of the state policy regarding the road safety. Their realization is supposed to be held as part of next realization programmes. The directions of action set in the National Road Safety Programme correspond with a current international recommendations (UN, the EU) in the road safety. However systematic implementation of instruments determined in this document is significant. Their lack can constitute a risk to achieve established purposes.

Summary

The economic and civilization development does not guarantee the prevention of death and disability. Statistical data presented in the article concerning road accidents and their effects confirm this thesis. Only in Poland, since the accession to the European Union, in spite of numerous activitis aimed at the improvement of the road safety almost 60 thousand people were killed, and almost 700 thousand injured in road accidents were hospitalized over a long period of time. Probably almost 50 thousand of them will never recover fully. That generates high economic and public costs.

The least recognized group of road accidents' effects is a group of people suffering emotionally. Psychological pain after the loss of close friends and family is the most difficult one in diagnosing and healing. It is also hard to determine precisely economic losses. Apart from expenses connected with the treatment and the rehabilitation, payment of compensations and benefits, losses resulting from the long-lasting or temporary impossibility of creating the GDP should be considered. Considering average values of the human life and financial losses recommended by experts of the Jaspers initiative (Jaspers, 2015) for infrastructure projects carried out in Poland, the value of economic costs of road accidents amounted above 21 trillion PLN in 2004–2016.

The biggest problems in the fight against the threat of the health and life in the road traffic result from stereotypes still ruling in the Polish society, like e.g.: accidents are an inevitable and inherent element of the road traffic, and are caused by „ruts on roads”, connecting the dynamic ride with the safe one is impossible, if somebody was killed it was only his own fault. Many people can't see also a problem in driving after drinking alcohol. The change of mentality is a necessary condition of the improvement in safety.

The factor which negatively affects unsatisfactory reduction in number of road accidents and their victims and its growth in 2016 increasing number of vehicles on Polish roads. The increasing availability of passenger cars, motorbikes causes, that their drivers have minor driving skills. Experts pay attention to the weakness of drivers' education system. Many people get the driving licence being able to park precisely the car on the training yard (going over the lines pointing outer edges of parking positions causes not-passing the examination), and at the same time not having an ability of moving on non-urban roads. Often during the course the candidate for driver never reaches the speed higher than 50 km/h, and after obtaining the driving license drives on roads where other vehicles move with much higher speed and must manoeuvre the way he has never trained. The factors affecting decrease in the dynamic of reducing the number of accidents in final years can be: legislative changes concerning confiscating a driving license or an elimination of the significant number of speed cameras.

The increase in the number of accidents in 2016 can also be a result of the risk's homeostasis occurrence (Wilde, 1988), having its source in behavioral theories. After a long period of the improvement in the safety an increase of risky behaviours on roads leading to the increase the number of road accidents can appear . This phenomenon can be confirmed in accident statistics. In all EU member states every few years there is an increase in road accidents, and then in a next period time there is a decrease.

References

Abdel-Aty, M. A. and Abdelwahab, H. T. (2000). *Exploring the relationship between alcohol and the driver characteristics in motor vehicle accidents*, Accident Analysis & Prevention Vol. 32, No. 4, pp. 473–482. doi: 10.1016/S0001-4575(99)00062-7.

Annual Accident Report 2016. (2016). Available at: https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/statistics/dacota/asr2016.pdf (Accessed: 4 May 2017).

Blomberg, R. D., Peck, R. C., Moskowitz, H., Burns, M. and Fiorentino, D. (2009). *The Long Beach/Fort Lauderdale relative risk study*, Journal of Safety Research, Vol. 40, No. 4, pp. 285–292. doi: 10.1016/j.jsr.2009.07.002.

Cicchino, J. B. and McCartt, A. T. (2015). *Critical older driver errors in a national sample of serious U.S. crashes*, Accident Analysis & Prevention, Vol. 80. pp. 211–219. doi: 10.1016/j.aap.2015.04.015.

COM 144 (2009). *White Paper. Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system*. European Commission.

COM 370 (2001). *White Paper. European transport policy for 2010: time to decide*.

COM 389 (2010). *Towards a European road safety area: policy orientations on road safety 2011–2020*. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions.

Compton, R. P., Blomberg, R. D., Moskowitz, H., Burns, M., Peck, R. C., Fiorentino, D., Peck, R. C., Risk, C. and Study, C. (2002). *Crash Risk of Alcohol Impaired Driving*, Proceedings of the sixteenth International Conference on Alcohol, Drugs and Traffic Safety ICADTS. Montreal.

Fell, J. C. and Voas, R. B. (2006). *The effectiveness of reducing illegal blood alcohol concentration (BAC) limits for driving: Evidence for lowering the limit to .05 BAC*, Journal of Safety Research Vol. 37, No. 3, pp. 233–243. doi: 10.1016/j.jsr.2005.07.006.

Fell, J. C. and Voas, R. B. (2009). *Reducing illegal blood alcohol limits for driving: effects on traffic safety*, [in:] Verster, J. C., Pandi-Perumal, S. R., Ramaekers, J. G., and de Gier, J. J. (eds) *Drugs, Driving and Traffic Safety*. Basel: Birkhäuser , pp. 415–437. doi: 10.1007/978-3-7643-9923-8_26.

Jaspers (2015). *Blue Book: Road infrastructure*. Warsaw.

Jaździk-Osmólska, A. (2015). *PANDORA – valuation method of social costs of road accidents in Poland*, Roads and Bridges, Vol. 14, No. 2, pp. 133–142.

Keall, M., Frith, W. and Patterson, T. (2004). *The influence of alcohol, age and number of passengers on the night-time rate of driver fatal injury in New Zealand*, Crash Analysis & Prevention Vol. 36, No. 1, pp. 49–61.

Krüger, H. P. and Vollrath, M. (2004). *The alcohol-related accident risk in Germany: procedure, methods and results*, Accident Analysis & Prevention Vol. 36, No. 1, pp. 125–133. doi: 10.1016/S0001-4575(02)00134-3.

Mathijssen, R. and Houwing, S. (2005). *The prevalence and relative risk of drink and drug driving in the Netherlands: a case-control study in the Tilburg police district*. SWOV Institute for Road Safety Research.

Murray, C. J. L. and Lopez, A. D. (eds). (1996). *The global burden of disease: a comprehensive assessment of mortality and disability from deceases, injuries and risk factors in 1990 and projected to 2010*. Harvard University Press.

Omran, A. R. (1971). *The Epidemiologic Transition: A Theory of the Epidemiology of Population Change*. The Milbank Memorial Fund Quarterly. Vol. 49, No. 4, pp. 509–538.

Peck, R. C., Gebers, M. A., Voas, R. B. and Romano, E. (2008). *The relationship between blood alcohol concentration (BAC), age, and crash risk*, Journal of Safety Research Vol. 39, No. 3, pp. 311–319. doi: 10.1016/j.jsr.2008.02.030.

Płachecka, M. (2016). *Efekty działań na rzecz poprawy bezpieczeństwa w transporcie publicznym w Polsce*, Autobusy – Technika, Eksploatacja, Systemy Transportowe, nr 10.

Raczyńska-Buława, E. (2016). *Bezpieczeństwo w ruchu drogowym w Europie: założenia polityki UE i ocena podejmowanych działań z perspektywy danych statystycznych*, Autobusy – Technika, Eksploatacja, Systemy Transportowe, nr 10.

Road safety evolution in EU. (2016). Available at: https://ec.europa.eu/transport/road_safety/sites/roadsafety /files/pdf/observatory/historical_evol.pdf (Accessed: 4 May 2017).

Rogers, R. G. and Hackenberg, R. (1987). *Extending epidemiologic transition theory: A new stage*, Social Biology, Vol. 34, No. 3–4, pp. 234–243. doi: 10.1080/19485565.1987.9988678.

SafetyNet. (2009). *Alcohol*.

Traffic Safety Basic Facts 2016. (2016). Available at: https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/statistics/dacota/bfs2016_main_figures.pdf (Accessed: 4 May 2017).

Transport in Figures. Statistical Pocketbook 2016 (2016).

Wilde, G. J. S. (1988). *Risk homeostasis theory and traffic accidents: propositions, deductions and discussion of dissension in recent reactions*, Ergonomics, 31. pp. 441–468.

World Health Organization (2015). *Global Status Report on Road Safety 2015*, WHO Library Cataloguing-in-Publication Data Global, p. 340. doi: 10.1136/injuryprev-2013-040775.

Wróblewska, W. (2009). *Teoria przejścia epidemiologicznego oraz fakty na przełomie wieków w Polsce*, Studia demograficzne, 155(1), pp. 110–157.

Wypadki drogowe w Polsce w 2016 roku. (2017). Komenda Główna Policji, Warszawa.

Central European Review of Economics & Finance
Vol. 21, No. 5 (2017), pp. 25–36.

Magdalena Majchrzak[1], Jan Nikołajew[2], Michał Urbas[3], Elżbieta Wulbach[4]

SOCIO-ECONOMIC AND CULTURAL ASPECTS OF MIGRATION IN THE LIGHT OF CONTEMPORARY PROBLEMS

Migration as a social phenomenon is a subject of interest to many disciplines. The fundamental question is: in which categories do we perceive the current wave of immigration in Europe. Perhaps it is a permanent migration crisis, as well in the social as in the the economic dimension or perhaps it is only a conjunctural issue. Part of European countries calculates that along with immigrants new jobs will appear, it will result in economic revival. It means that immigrants can stimulate economic but also cultural development. Therefore, you should „take a look" at the process of the migration in the micro and the macro scale. Taking into account this point of view, you should also analyze the phenomenon of contemporary migration in the multicultural context and through the adaptation processes. In their new social environment they will have to function without triggering hostility and aggression. The process of socio-professional adaptation is long and therefore it will force curren monitoring of the social and economic sciences.

JEL Classification Codes: J610, J620, F660.

Keywords: Geographic Lador Mobility, Immigrant Workers, Labor Mobility, Social Mobility, Globalization.

[1] Assiciate Professor, PH.D., Poznan School of Banking, Faculty of Economic in Szczecin.
[2] Assiciate Professor, PH.D., Poznan School of Banking, Faculty of Economic in Szczecin.
[3] PH.D., Poznan School of Banking, Faculty of Economic in Szczecin.
[4] M.Sc, Poznan School of Banking, Faculty of Economic in Szczecin.

Introduction

Migration as a social phenomenon is of interest to representatives of social and economic sciences. This is due to the fact that the process of spatial movement, which entails certain consequences, also included in the scale of the phenomenon of migration. Migrations throughout history are determined mostly by armed conflicts, religious and political persecution, and also earning well. Against this background can be „tempted" by a few comments related to the phenomenon of migration in the modern world (Thomas, Znaniecki, 1976, p.46).

Sociologists have long observed that living in the modern civilized world, people constantly need help to implement, realistic projects suitable for life, such as „they". This means that people within our lives filled with a kind features, while being situated in a measured by our indifference or social distance. The straight line leads to a division of the in-group and a foreign or in other words, on the local and arrivals. The influx of newcomers, whatever it may be, is always a group of his own – for local challenge, causing a whole chain reaction. The newcomers, in a sense, for „us" useful or even are indispensable. But this is not all, the whole system is integrated into more „alien". While „we" and „they" are ready is this, to create a whole, it „foreign" no longer questioning the validity of the established position. The most common, what happens in this situation is separation for example. Territorial – they create a ghetto, reserves ethnic and parts of cities separated areas for habitation by strangers. But this is not the end of a fully effective means of separating the parties. In cases where separation is insufficient, the voltage prevailing in some way reduced by applying sanctioned spatial segregation. Well this phenomenon is evident in large cities, where there are areas where you can meet people only one type and not others. This eliminates the occurrence of confusion with whom you are dealing. The defensive reflex township, as part of survival, the Americans used a well-known technique of civic indifference. This is nothing else but see nothing, I hear nothing and is not interested in what others are doing. In full, this means that today's life is conditioned by experience yesterday (Bauman, 1996, p. 15–41).

Migration in the process of globalization

Migration is a phenomenon that increases with the progress of globalization, ie. Global integration. Immigration is the influx of people to the country, the most common goal of settling in it, while emigration outflow of population from the country to live somewhere else. Factors influencing the immigration divide, according to the classical literature on pushing (eg. famine, war, persecution) and attractive (eg. a good job market, better living conditions, security). It seems important to consider the notion of migration in the context of „diaspora" as this term is the dispersion of the nation – ethnic population scattered around the world – eg. Jewish. Often this population is experienced through difficult situations and dramatic events in their home country (Giddens, 2010, s. 282–283).

„Rzeczpospolita", No. 212 of 2015 light the problem of a huge wave of refugees that reaches and floods in Europe, trying to determine who and how to help these people in Poland. Polish government and institutions set up to declare that they are prepared to deal with the crisis, but improve on this occasion that their aid is often wasted. Every refugee has to be written down and registered, and many of them do not like and evade this obligation. Each one must question: whence he came, what he intends to do and fingerprints. Each one must allocate space in a refugee center, where there is frequent quarrels and conflicts between inmates. Sorry, but Poinciana journalists it says that, despite assurances to the public site, in fact officials are not prepared to accept such a large number of refugees, (Ćwiek, Blikowska, 2015, p 8) which raises understandable anxiety.

About all the contemporaries of the events can be read on a regular basis not only here on site in Europe, but also and there, in Syria, Eritrea, in the Middle East. With the ubiquity of new media, including access to television, the Internet, mobile networks, greater knowledge about life in other countries and the opportunities that these countries offer immigrants. This is a result of the operation of the people in the world of information, ie. The societies that live under the influence of the use of information and communication technologies. As a result, the information society action in sectors such as economy, science, culture, labor market are entirely based on the processing of information (Dijk, 2010, s. 35–36). Technical innovations make it easier for immigrants efficiently reach your destination and on the spot, in the country of destination, finding the right help, ie. Easy to reach the appropriate office and completion of the formalities. The globalization of the flow of information on migration, refugees makes decisions about emigration is becoming easier (Zięba, 2008, p. 16) (for logistics).

It seems important, therefore, that with the new, unprecedented since the end of World War II wave of emigration, taken simultaneously immigrants from different countries, and so the phenomenon of multiculturalism in one area. Along with immigrants coming to Europe all the habits, experiences, religions and the conflicts they experienced in their countries. This means that the current place of residence change individuals, families and even whole social groups (national or ethnic). Distinctive there are two types of migration, first enforced migration mainly due to warfare, military, political pressure and, secondly, voluntary migration, which takes usually for economic reasons, seeking better jobs and salaries (Kawczyńska-Butrym, 2008, p. 28). In the current wave of refugees as much as 70% of men, which many observers describes as immigration, causing that you can not all be called refugees or refugees, because not all fleeing war or terror. It is also puzzling that such a large percentage of outgoing men will not be without significance for the country from which they left. This so-called men. „Prime of life" out there who are needed on site to conduct military operations and reconstruction of the country, homes from the devastation.

After the first wave of positive attitudes towards refugees in Europe have highlighted the problems and antagonistic attitude. They began to talk about them and discuss. Particularly fierce and sharp discussions are conducted in Germany and the European Union, which seems fully justified. Almost all immigrants, refugees, the refugees want to reach only to Germany and the UK. The main problem which is faced, how many immigrants are able to accept these countries. According to German sociologist Christoph Hasselbach, fierce debate is between those that want to take more and more refugees and those who warn of the consequences and possible consequences when one country will be too many strangers. You can see in these disputes position, on the one hand indiscriminate mercy, the other of racism and naivety. There are also those which not only operate discuss and set fire to shelter refugees. Xenophobia is not only in Germany, is also in Poland and in Central and Eastern Europe. Mass media suitable tonnes in daily batches of messages about refugees, they give a clear message about the fight with them which is fought by example. Hungary, Slovakia, the Czech Republic and now Croatia and Serbia. This signal is carried out by Germany aftermath of wishful policy. Directed refugees invitation to the arrival of Germany, has become a pan-European problem. On the first line of „front" faced such countries as Greece, Malta and Italy. They are the bridgehead for refugees from Africa, navigating the terrible conditions in the Mediterranean Sea. Further, the routes extend through Macedonia, Serbia and reach to Hungary and then through Austria to Germany or Sweden or Norway. Hungary, however, has closed its border and built on the wall and sent the army to the refugees. This, however, did not resolve the matter resulting in the further consequences of tightening relations with its neighbors Hungary and the entire European Union. Intensified mutual accusations and tossing newcomers on the principle: any farther apart, this is not our problem, it is purely German affair – such an approach emphasizes a large part of European politicians. This means that thinking in terms of wishes or a „we can do it", without further preparation, plan and analysis, is dangerous, and the consequences are far-reaching and will also address the future generations. Asking these questions what next, when a wave of newcomers will not falter, and what happens if the integration of this vast cultural mix will fail. Many voices raised today anxiety, for example (Hasselbach, 2015). What does Europe, as in force on the canvas of these events grow extremists. The problem fanatics is not examined solely in terms of those emanating from the European citizens but also of arriving immigrants. The first adjustment German policy towards refugees was already 13.09.2015, through the introduction and reintroduction of checks at the borders. According to journalists of „GazetaWyborcza" situation surpassed Europeans, Germany, Austria, Slovakia reinstate border controls, for all newcomers say they are Syrians, and this is dangerous. There is concern what happens with the Schengen Agreement – the foundation of the freedom of Europeans to move within the European Union (Wieliński, Bielecki, 2015).

The phenomenon of anxiety, and even the first signs of reluctance, are apparent already in Poland. On the agenda are vulgar and offensive entries on social networks or in comments to articles online. It became apparent point fingers and taunts on the street or in public means of communication. Szczecin newspaper „Głos Szczeciński" in the issue dated 15/09/2015 of the year, on the first page publishes an extensive article on hostility towards the Syrians. TV news programs reported that in Gdansk was the first Polish team. Immigrants. Its aim is to strengthen cooperation between participants in managing migration and creating the conditions for the potential of educated, talented, active and enterprising immigrants.

Prostive and negative effects of migration processes in Europe, Poland, Westpomeranian Region

To exemplify this situation, here are the procedures provided for foreigners in Western Pomerania. Szczecin council through the mayor informs the residents that „the procedure within the framework of action in the face of a mass influx of foreigners into the region of the West Pomeranian envisages the following phases: a preparatory phase (eg monitoring and analysis of the situation, verification of data on the acceptability of a certain number of foreigners calling Provincial Crisis Management Team, to prepare the system for informing the public); Phase I – to organize a provincial point of reception and temporary places of residence (including the appointment and arranging a reception desk foreigners, transport and accommodation of foreigners in the centers in the region, medical and psychological care). Only after exhausting this stage, there may be action, which can directly be incorporated Szczecin; Phase II – organizing further (6-month) stay of foreigners in the context of temporary protection in the region (including identification of new facilities offering the possibility of adopting temporary residence, preparing temporary places for settlement, monitoring, medical and psychological care, educational support for children and youth). The next stages of the proceedings must be determined by the Government and its agencies. At the moment (15.09.2015), The Municipal Office in Szczecin has not received any guidance or information about the need to support the process of settlement of refugees in the city" (Urząd Miasta w Szczecinie, 2015). The procedure seems to fully reflect the maturity of the country to the likely wave of refugees who does not miss Polish.

It is for immigrants to prepare a study plan of the Polish Constitution and the rules in force in Poland and the European Union. It should be taken as essential that all immigrants must be familiar with the constitution and abide by its provisions that state that life with various religious and ideological groups. It is always a very sensitive issue and must learn to work with them. Therefore, you should start by educating its own citizens in order to promote among them attitudes that can help those in need immigrants, but also taking action to misunderstandings and negative attitudes. Keeping initiatives aimed at identifying the needs of immigrants and immigration needs of the local community and learning more about actions that can be taken in this regard.

Social, economic and cultural aspects of immigrants in Europe are not far away for the Polish population. Opinion-making newspapers publish daily reports on this phenomenon. It says that immigrants, martyrs or perhaps the invaders. Roar, it was a chaotic stream of people. Publish moving images of the small towns on the periphery of Hungary, the Czech Republic. Bombard mass audience reportage of fighting in the Greek islands and dramatic shots of dilapidated boats which are laden and plastered with groups of refugees from Syria, Afghanistan, Africa or Libya. And this is only the effect, and where the reason? List reasons, or rather the sins of Europe is a long one. As a leading administered no more effective European aid for African countries and the postcolonial, which included the lack of development in these countries, which resulted in deepening poverty, degeneration and huge population growth. As mentioned key overthrow regimes in Africa and the Middle East, and attempts to introduce Western democracy there, which proved a complete fiasco. These actions have led to numerous wars, the increasing chaos and ultimately to the creation of an Islamic state. It had to cause mass emigration of desperate people. In conclusion, the Europeans have themselves contributed to her call (Giziński, 2015, p.64–66) , and financial support to various groups within the „Arab Spring" has brought mostly counterproductive.

There are also positive aspects of immigration, which has rightly pointed out the German government. Among the immigrants is the potential for an aging German society and not only. It is widely known that Europe is getting older, a demographic bulge has become a historical concept. The researchers make it clear, European women are born less frequently or not at all. Young later and later they tie the family, and for most of them, consumption, comfort and a high level has become an ideology of life. Immigrants are workforce, often educated and what is most important, are young children or are ready to have them. It is thus possible a new generation of spontaneous import and experts. This means that in Europe there is the tightening policy to each of those newcomers who are needed the economy and the community. This is nothing new. These solutions apply countries like the US, Canada and Australia. They define who need it and come down to each person of a certain age or with a suitable education. In the long run everyone pays – both the country that receives them, and the new arrivals (Marczuk, 2015, p. 67–65).

These aspects require some action, namely pragmatism as regards the flow of refugees. Learn a language, knowledge of the culture of a country and the Constitution seem indisputable. On the part of the host country of immigrants, it is necessary to recognize and assimilate the cultural conflicts caused by the difference of which bring with them in their luggage of experience seekers. It is required so as soon as possible to start learning by immigrants knowledge of the principles on which life is based in the country and in the city in which they live. Such actions will help immigrants assimilate the rules of conduct in force in Europeans and give them a real chance to integrate into the local community.

It can therefore refer to a few basic applications. It is obvious that the emergence of such a large number of newcomers will make they will be more visible in European cities, including in Poland. There will be formal and legal difficulties, because for most it is a „new" immigration without any experience with the state to which the face. State institutions is the need to collect, identify and classify relevant documents, most of them immigrants simply do not exist. Immigrants are experiencing a sudden the gap between the country of origin and destination, which raises separation from family, religion, customs, standards of everyday life. As a result, it promotes the problems in establishing relationships with the local community. Blocks – destinations residence for immigrants in the country of destination, the flat they do not want the locals and create there a kind of ghetto. The consequence is obvious sources of difficulty in relationships with the local administration, the law, all the institutions as well as the inability to enter the local labor market (eg France and neighborhoods of immigrants from Algeria). In Poland, according to estimates 50% of the refugees are unemployed, the rest working in the informal sector, Jackie struggled for the degrading rate classes. The conflict with the new standard of living is also a recognition of educational and professional qualifications. It is difficult to compare the level of knowledge and expertise refugees from Africa or the Middle East (no certificates, standards and curricula). The basis of hostility becomes a continued ignorance of the language of the country, and thus the inability to communicate and to communicate. Language skills cause that is not followed by any action – engaging, activation refugees in institutions, associations or political parties, and the only intensify life takes place in paramilitary organizations, extremist or simple gangs (Łada, Segeš Frelak, 2012, p. 34).

Every day we come to the Europeans messages, subsequent facts and reports on refugees. The EU leaders gather, fall is pervasive appeals and terminology related to the selection of immigrants to those who need help – the refugees and what help can not be – economic immigrants, which really do not know what to do. Defectors and refugees are understanding, but economic immigrants are not. There are growing louder opinion that this whole wave of newcomers is threatening „terrorists and element" that should be considered dangerous and threatening Europe. There has been media discourse about how European countries should respond to the calls for solidarity in accepting immigrants. This deep dispute is also running in Poland (eg. The weekly „river basins", John Pospieszalski cycle „Closer" in TVP Info, episodes: „Who wants to help Europe", „Who is a xenophobe and who is suicidal in Europe?", „Is Poland should accept immigrants?"). Journalists still inquire and constantly emphasize that they do not know who they are and where they come countless numbers of immigrants, causing an atmosphere of stress, uncertainty and misunderstanding.

It is assumed that 20% of Germans support already granted to immigrants. In Germany this topic did not avoid. Most of the inhabitants of Germany is well aware that if they want to maintain their current standard of living and the state, the immigrants they are needed and what is more, it is a question of many millions of immigrants. Only 2015, the German authorities estimate that accept 800 thousand. immigrants, and it should be emphasized that they do not have in this respect certain limits. Stanislaw Strasburger gives the example that in the broader context of Germany pay for mistakes made in the 60s At the time, Federal Republic of Germany fully controlled emigration from Turkey. It was a purposeful recruiting seasoned with the slogan „we need simple workers for simple jobs". People who come will work, but will not integrate. Translation was simple, because neither they are not interested, nor Germany will not persuade them to do so. In the economic accounts for employers, but it did not pay. The workers had come shortly and leave Germany and were pulled and in addition their families. These people lived separately in their gatherings and they had no right to association, participation in trade unions (Zagner, 2015) . The effects are visible today.

Currently, the refugee problem has become a major concern for those who come to Europe and Polish many years ago. Describing its beginnings, they stressed that it was very difficult. The times were difficult, the language was difficult and the climate was difficult. Such Syrians in Poland many today say they feel now Poland and the Poles are now. The war in Syria and a huge wave of refugees evokes strong emotions among them. Pity them especially the elderly, women and children. Syrians living in Poland, intently listening to the debates on immigration. They emphasize that established a strong polarization, for those who are categorically against and those who are for refugees from greeting with flowers. They feel that both these positions are wrong. Founded the attitude determined by the Syrians themselves as „benevolent firmness". This attitude, decision makers indicates that immigrants must be thoroughly checked. Each of the refugees, it is necessary to ask questions about the reasons for coming to the Polish and of his identity, and if you will take a lot of refugees, is the „need to carefully examine each". Syrians living in Poland leave no illusions, most of the newly adopted by Poland refugees and so use the first opportunity to leave west („Polska i Świat" TVN 24, 2015). Poland is a transit country for them.

Zygmunt Bauman in „Society in the besieged country", noted that the refugees, forced and voluntary migrants, displaced persons, refugees in the last two hundred years of modern history were treated solely as a problem country that their guests in the same way with them celebrated. This means that refugees were and are forced to abandon their environment, and thus they allow themselves to be deprived of their identity, which they defined the environment, sustained and most importantly play all. In other words, the old identity became invisible, was asleep and returning insistently in the memories and longings and dreams. There is difficulty in search of a new identity, and even an obstacle in finding a new environment (Bauman, 2007, p. 131–138). The phenomenon of nightmares associated with coming to a new country is widely described in the literature, for example. Andrew Olkiewicz says that after the arrival of all refugees tormented by their nightmares, doze briefly and resonate through it, because the decision to leave their homeland is an overwhelming experience (Olkiewicz, 2010, p. 68–70). Gaspar Miklos Tamas, a visionary of the New Left in Eastern Europe, sees the following reason why Hungary and other Eastern European countries the way they do care about the current wave of refugees – „there is a kind of competitive immigration. Eastern European countries are not able to survive without excess labor migration to Western Europe". Various sources say that the Polish left more than two million young people, and Hungary 650 thousand. Next, the author explains that „in the interest of such countries as Hungary is to stop the influx of refugees, because they compete with us on the western resources, as Eastern European economies are sad ripped". Hungarian Prime Minister Viktor Urban stated that „refugees do not protect themselves against the threat of life and death, but want a better life. They want to live like us" (Jarecka, 2015) in a better world.

In 2013 he published a book Stefano Liberti Fri. „To the south of Lampedusa. Travel despair" (Liberti, 2013, p. 45). In a review of the book it is written that „behind the walls of the elegant hotels all inclusive to the shores of Lampedusa killing boatloads of exhausted people". It is a record of observations, interviews and attempt to crack down travel „despair" as they take the people of Africa to reach Europe. From the description of the talks it is clear that these people are desperate to sell all their possessions, rely on the mercy of smugglers and go to Germany, to a better life, that they believe and they believe that „there" is a better life waiting for them. Costs, whether it be social, economic or human does not have any significance for them. However, better life begins and ends in the refugee camps. In conclusion, since the publication of the book cited it passed nearly three years. The problems of refugees is not solved, the wave of immigrants, these voluntary and the economy is growing. Currently, only international smuggling gangs have taken appropriate action and transformed into efficient and effective criminal enterprise generating huge revenues. Poverty, misery, misery left.

Immigrants have nowhere to go, they have nowhere to stay and they have nowhere to return. In the modern world is sweeping the huge mass of humanity „zombie" – Zygmunt Bauman – but it is inclined, mobile phones and is available on Facebook.

October 6, 2015 year, the news service TVN24 reported that the immigration crisis in Europe spoke Donald Tusk – head of the European Council and suggested that refugees could become a tool in the war hybrid – „for us refugees are people who want our help. But there are forces for whom the wave of refugees is just a dirty business or political bargaining chip. Slowly, we witness the birth of a new form of political pressure. Some may even call it a new „hybrid warfare" in which the wave of migration has become a tool, a weapon against neighbors" (*Serwis informacyjny TVN24*, 2015).

Conclusions

On the basis of these selected aspects of migration in Europe today you can point to its economic and social complexity. No system solutions related to contemporary migration causes a lot of tension and conflict with the local and globalization. The so-called. migration of people in search of better living conditions, or specific to the various persecutions, have been known for centuries. It is therefore the scale of the phenomenon of contemporary migration and the resulting problems of multiculturalism and expressed attitudes towards each other, both at the local, county, regional and globalization. This makes the study of migration should be an important picture of a social nature.

References

Bauman Z., (1996). *Socjologia*, Wydawnictwo Zysk i Spółka, Poznań.

Bauman Z., (2007). *Społeczeństwo w stanie oblężenia*, Sic!, Warszawa.

Bielecki T., (2015). *Czy Schengen umiera?*, „Gazeta Wyborcza", No. 215.

Ćwiek J., Blikowska J., (2015). *Kto się zajmie przybyszami?*, „Rzeczpospolita, No. 212.

Dijk J., (2010). *Społeczne aspekty nowych mediów. Analiza społeczeństwa sieci*, Wydawnictwo Naukowe PWN, Warszawa.

Giddens A., (2010). *Socjologia*, Wydawnictwo Naukowe PWN, Warszawa.

Giziński J., (2015). *Kraje oblężonej Europy*, „Wprost", No. 36.

Hasselbach C., (2016). *Zacznijmy rozmawiać o uchodźcach*, Deutsche Welle, www.dw.com, (Access: 06.02.2016).

Jarecka A., (2015). *Polityka Viktora Orbana wobec migrantów. Dlaczego Węgry się izolują?*, Deutsche Welle, http://www.dw.com (Access: 24.09.2015).

Kawczyńska-Butrym Z., (2008). *Migracje – zmiany położenia społecznego*, In M. Zięba (ed.), *Migracja – wyzwanie XXI w.*, Lubelska Szkoła Biznesu Sp. Fundacji Rozwoju KUL, Lublin.

Liberti S., (2013). *Na południe od Lampedusy. Podróże rozpaczy*, Wydawnictwo Czarne, Wołowiec.

Łada A., Seges Frelak J., (2012). *Znikająca granica. Nowa Polska migracja do Niemiec – perspektywa lokalna*, Fundacja Instytut Spraw Publicznych, Warszawa.

Magazyn „Polska i Świat”, TVN24, (2015). http://www.tvn24.pl (Access: 27.09.2015).

Marczuk B., (2015). *Polska ucieczka do przodu*, „Wprost”, No. 36.

Olkiewicz A., (2010). J*ak żyć szczęśliwie w innym kraju*, Wydawnictwo Czarna Owca, Warszawa.

Serwis informacyjny TVN24, (2015). http://www.tvn24.pl. , (Access: 22.09.2015).

Thomas W., Znaniecki F., (1976). *Chłop polski w Europie i Ameryce*, Ludowa Spółdzielnia Wydawnicza, Warszawa.

Urząd Miasta w Szczecinie, (2015). http://www.szczecin.pl (Access: 17.08.2015).

Wieliński B., (2015). *Uchodźcy przed szlabanem*, „Gazeta Wyborcza”, No. 215.

Zagner A., *Między wurstem a halal. Rozmowa ze Stanisławem Strasburgerem o prawdziwych uchodźcach w Niemczech i o polskich mitach na ich temat*, „Polityka”, http://www.polityka.pl (Access: 22.12.2015).

Zięba M., (2008). *Zintegrowane podejście do kwestii migracji*. In M. Zięba (ed.), *Migracja – wyzwanie XXI w.*, Lubelska Szkoła Biznesu Sp. Fundacji Rozwoju KUL, Lublin.

Central European Review of Economics & Finance
Vol. 21, No. 5 (2017), pp. 37–58.

Marta M. Bojko[1], Marzena Feldy[2], Barbara Kowalczyk[3], Anna Knapińska[4]

POLISH BUSINESS MODELS OF TECHNOLOGY TRANSFER CENTRES AGAINST FOREIGN LEADERS. CONCLUSIONS OF THE CASE STUDIES

The authors analyse business models existing in leading technology transfer academic centres throughout the world, in order to find out to what extent they are implemented by entities in Poland. Their attention is focused on such components of business models as: legal form and methods of financing, the mission of operations, the work integration and the mechanisms of collaboration with the science and commercial sector. The study is qualitative, based on the analysis of the case studies of foreign entities. The diversity of global solutions enables a critical look at the activities of Polish technology transfer centres and points to the choice of models which are best suited to their domestic conditions. According to the authors, the improved effectiveness of technology transfer centres is an important part of the debate on the transformation of traditional universities into entrepreneurial universities.

JEL Classification Codes: O32, O34.

Keywords: Entrepreneurial university, technology transfer, business models.

Introduction

Science is a unique sphere of public activity; the diffusion of knowledge enables the building of a strong economy and the fulfilment of social ob-

[1] Research Fellow, Ph.D. candidate, National Information Processing Institute, Warsaw, Poland.
[2] Assistant Professor, Ph.D., National Information Processing Institute, Warsaw, Poland.
[3] Research Fellow, Ph.D., National Information Processing Institute, Warsaw, Poland.
[4] Research Fellow, Ph.D. candidate, National Information Processing Institute, Warsaw, Poland.

jectives. Currently, however, academic institutions are treated in the same way as all other public sector organizations which have to compete for public funding (Kwiek, 2015). It is assumed that higher education institutions should actively participate in the creation of an innovative economy. In addition to research and educational activities, characteristic of the traditional Humboldtian university, the so-called third mission is gaining in importance (Etzkowitz & Leydesdorff, 1995). A specific feature of entrepreneurial universities is the strong links with the social and economic environment.

Despite this, the university is still a space in which the social and cultural structure differs from that of commercial entities. The key role in the „self-regulating structure of the certification of knowledge” (Niedzielski & Łobacz, 2012, p. 13) is played by the researcher. It is with the researcher or a team of researchers generating results that the commercialization of research outcomes starts. Achieving the objectives relating to innovation has to be facilitated by the creation of specialized entities involved in the commercialization of research results and knowledge transfer to the socio-economic development by modern scientific institutions. The most popular of these are the academic centres of knowledge and technology transfer (hereinafter referred to as technology transfer centres, TTC), managing and commercialising the knowledge generated in scientific entities (Landry, Amara, Cloutier, & Halilem, 2013).

A breakthrough on a global scale was the adoption by the US Congress in 1980 of the so-called Bayh-Dole Act. The new law gave universities the right to patent and license inventions resulting from research financed from public funds; previously, patents had been owned by the Department of Treasury and therefore did not bring any benefits to scientific institutions. Over time, solutions similar to the Bayh-Dole Act were adopted in countries such as: Argentina, Estonia, France, Germany, India, Malaysia, South Africa, and the United Kingdom. They also apply in Poland (Zuniga, 2011; Krzewiński, Budasz, Krzewińska, Gabriel, & Sypniewska, 2014). The Bayh-Dole Act and its foreign counterparts have led not only to an increase in the number of patents, but also to the widespread creation of technology transfer centres (Mowery, Nelson, Sampat, & Ziedonis, 2015)

The substantial increase in the number of TTCs and their evolution, aiming at developing the most effective practices for technology transfer, has resulted in variety of business models[5] of these entities (Axanova, 2012; Landry et al., 2013). Moreover, the differentiation is increasing along with the pressure to optimise the structures that will meet the needs and expectations of the academia and the business environment (Axanova, 2012). At the same time, in spite of continuous improvement, a few of the American and European universities have been successful both in terms of the number of commercialized technologies, and achieving income from them (Conti & Gaule, 2011; Baglieri, Baldi, & Tucci, 2015). Business models used by universities that successfully commercialise inventions are the subject of research and serve as a role model for younger and less experienced centres.

In Poland, the first transfer centres were created in the 1990s, but interest in them increased after 2005 with the introduction of the statutory provisions relating to their activities within the structures of universities. In practice, the number of TTCs increased significantly after 2010, when a possibility opened to finance their operations from the Structural Funds. The experiences of Polish TTCs are therefore not significant, as compared to their foreign counterparts, and their business models are just starting the adaptation process to the realities of science and economy. According to Bąkowski (2015), some changes are already visible: the professionalization of services is taking place along with greater focus on the tasks related to technology transfer. Despite this, the overall balance of the activities of domestic TTCs is still not positive. On an annual basis, only a few dozen technologies are implemented in Poland, and most of them are carried out by three centres (out of the existing 42): at the AGH University of Science and Technology, the Jagiellonian University and the Technical University of Wroclaw.

Taking the unsatisfactory assessment of the activities of technology transfer centres in Poland as a starting point, the authors of the article set themselves the goal of describing the business models existing in the leading centres in the world. Due to the fact that the Polish TTCs follow the path defined by global leaders (as evidenced by, inter alia, introducing similar regulations), the authors also answer the question as to what extent the models described are implemented by national entities. An analysis of the case studies of the best foreign TTCs, and then comparing them with Polish practices can help to answer the question about which direction domestic entities should follow to best fulfil their mission.

[5] Understood as the relationships between the elements which coexistence and cooperation enables the creation and delivery of customer value, and consequently also value for the organization (Demil & Lecocq, 2010).

A description of the research methods is included in the first part of this article. Then attention was paid to the individual components of the business models: the legal form and methods of financing, the mission of operations, the work integration and the mechanisms of collaboration with the scientific and the commercial sector. Within these modules, the diversity of solutions is shown, illustrated by examples from foreign research units. The level of their utilization in Poland was also assessed. The summary identifies areas in which Polish TTC standards differ from the world leaders' and presents suggestions for directions for further development.

Methodology of the research

This article is part of the series of studies on the determinants of knowledge transfer in Poland, conducted in the Laboratory of Statistical Analysis and Evaluation of the National Information Processing Institute. It complements the results of a quantitative study devoted to the factors stimulating knowledge transfer in Poland (Feldy et al., 2014). The need for in-depth information about the solutions used in practice resulted in a decision to conduct qualitative analyses.

The study used case studies describing foreign entities as well as materials and data regarding the Polish TTCs, collected in 2011–2015 at the Institute. Examples from the most innovative countries in the world: the United States, Great Britain, Switzerland, Finland and Israel, were selected for the study. These include: the Office of Technology Licensing at Stanford University (OTL Stanford), the Technology Licensing Office at the Institute of Technology in Massachusetts (MIT TLO), Oxford University Innovation Ltd. at the Oxford University, Cambridge Enterprise Ltd. at the University of Cambridge, ETH Transfer at the Institute of Technology in Zurich, Innovation Services at the University of Oulu, Yissum Research Development Co. Ltd. at the Hebrew University in Jerusalem (Yissum), Yeda Research and Development Co. Ltd. at the Weizmann Institute of Science (Yeda) and the Technion Technology Transfer operating within the framework of the Technion Research and Development Foundation Ltd. (TRDF) at the Technion Institute of Technology. Data from the case studies was supplemented by carrying out a review of the literature and studying official reports of international organizations and national press articles, as well as materials provided by TTCs, including websites.

Components of TTC business models

Technology transfer from universities to business depends on the efficiency of the entity designated by the home organisation for the implementation of commercialisation (Pazos, López, González, & Sandiás, 2012; Tomczyńska, Knapińska, & Rószkiewicz, 2014; Berbegal-Mirabent, Ribeiro-Soriano, & Sánchez-García, 2015; Weckowska, 2015). Effectiveness is understood here as the effective achievement of the objectives set out by the university. These in turn are reflected in the business models of universities and the technology transfer centres themselves (Landry et al., 2013; Etzkowitz, 2014; Baglieri et al., 2015). The TTC mission is directly related to these purposes, and the legal form and method of financing provide their adequate structure. Other model components considered[6], that is, the work integration model and the mechanisms of collaboration with the scientific and the commercial sector are tools that determine the level of achievement of the goals (see Figure 1).

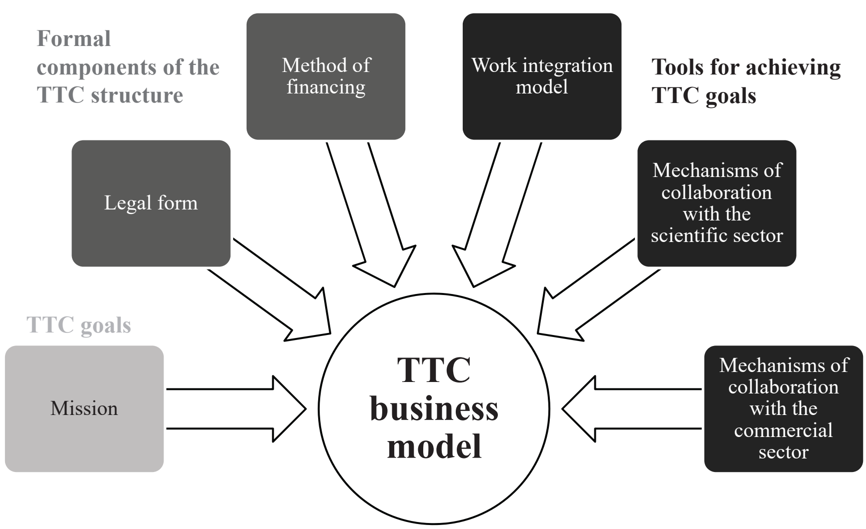

Figure 1. Components of the TTC business models considered

Source: own development.

[6] The article analyses business models using the analysis of components (Wirtz, Pistoia, Ullrich, & Göttel, 2016). In practice, various components are used by authors to describe organisational models in general terms. The approach presented in this paper has been adapted to the specifics of the organisation, an academic knowledge and technology transfer centre.

The legal form and method of financing TTC activities

Academic technology transfer centres anchored within research units are usually subject to financing and the management structure in force at the parent unit. They are then supervised directly by the university authorities or relevant research or financial units, as it is, for example, at the ETH Transfer or OTL Stanford. Entities which operate outside the university take the non-profit or for-profit operational model, or become a foundation (Axanova, 2012). They can operate as being wholly or partly dependent on the university. Cambridge Enterprise Ltd., Oxford University Innovation[7], Yissum, Yeda and Technion are entirely owned by their supervisory units, and Imperial Innovations at Imperial College in London or Hadasit at Hadassah University Hospitals in Israel are examples of companies with large groups of shareholders. Universities can also outsource commercialisation services under long-term contracts.

The level of autonomy of technology transfer centres' influences the form of financing. Apart from university funds, these entities may receive support from the national budget, apply for funding of projects and grants, as well as share in profits from the commercialisations conducted. The mechanism of income dependence on the effectiveness of TTCs is successfully used, for example, by MIT TLO and OTL Stanford, charging a 15 percent commission on their activities. In the case of Oxford University Innovation, the share is 30 percent. Another model is used by the ETH Transfer which transfers any surplus (including income) from its operations to the budget of the Institute of Technology in Zurich which fully funds it.

In the literature, there is a belief that developing an optimal organisation model is an individual matter, tailored to the specific needs of universities (Schön et al., 2013). The business approach is closer to the scientists who want to commercialise their inventions, as well as recipients of new technologies from the private sector (Hockaday, 2009). The popularity of establishing commercial companies stems from the striving of TTCs for independence and a sense that this form will operate more efficiently than a unit attached to a larger institution. It should be noted that the used legal forms and financing mechanisms in practice depend primarily on domestic regulations.

[7] The company, however, has a separate Isis Enterprise advisory department, also dedicated to researchers from outside the university which, on a commercial basis, provides expert services in all aspects of technology transfer, acting also as an investor – in exchange for a share in the profits, it assumes some of the risk of investing in new technologies.

In Poland, the legal form of technology transfer centres is governed by Article 86 of the Law on Higher Education of 27 July 2005 (Journal of Laws No. 164, item 1365) which states that this type of innovation centre operates as a university unit on the basis of regulations approved by the senate or in the form of a commercial company or a foundation on the basis of relevant documents. The formula of a university company is to protect the university against risks arising from direct involvement in a project in force of market laws. According to Bąkowski (2015), the most popular form of activity is a TTC within the structure of research institutions. In 2014, up to 83.3% of centres operated within their parent units, with companies accounting for 9.6%, and 7.1% foundations.

The TTC mission

Placing TTCs within parent units result in the centres' limited autonomy in defining the purpose of their operations. Their mission is determined by the size of the university, its administrative structure and budget. Moreover, the activities of the centre are influenced by the local environment, the subjective goals of potential stakeholders, and the availability of investment funds. In defining the mission, the TTC determines the range of services provided for the parent unit and gives priority to the dimensions of the activity, such as influencing the economy, generating profits from commercialisation and compliance with legal regulations and the state policy in the field of technology transfer. The traditional approach to the definition of TTC involves simultaneous reference to all of these areas, but later studies (Sharer & Faley, 2005; Weeks, 2006) indicate a practice to prioritise the main goals of the centre.

Axanova (2012) identifies three business models according to their mission. The model focused on supporting the parent university within the distribution of knowledge is called a service model. This feature can be attributed to the ETH Transfer which closely cooperates with scientists obliged by the university to disclose inventions and collaborate with the TTC. Similarly, Cambridge Enterprise Ltd. focuses on providing services to their alma mater researchers. The methods used are to generate the greatest benefit to the University of Cambridge and its researchers – achievements are rewarded in order to give motivation to take on new challenges. The core of the relationship with the science sector and the business sector is, however, the commercial view of all the relationships.

The business model which strongly emphasises the benefits for the local ecosystem is called by Axanova the economic development model. The social dimension of the technology commercialisation process is highlighted, for example, by Oxford University Innovation and OTL Stanford. In these centres, the essence of the whole process of knowledge and technology transfer is the social value generated by research results. Centres showing the characteristics of the economic development model support solutions which can contribute to the creation of start-ups or those that correspond to the needs of the local community. As a rule, they cooperate closely with the authorities in the region, as well as operate within larger initiatives, such as technology parks.

The third model – the revenue model, focused on revenue-generating opportunities is more natural to the units operating outside the university and self-managing budgets. A survey of American scientists showed that private academic TTCs are more likely to generate profit from commercialisation (Abrams, Leung, & Stevens, 2009). An example of success in this field is the MIT TLO, operating on behalf of a non-public university what influences the fact that all its activities related to technology transfer must be based on economic calculations.

Centres in Poland most frequently use the service model. According to Bąkowski (2015), their activity is addressed mainly to scientists, and external goals, such as entrepreneurship and local or international collaboration, are rarely mentioned among the priorities. This conclusion is also consistent with the structure of the recipients of domestic TTC services, dominated by representatives of the scientific community. As much as on the websites of centres, references to the impact on the local community and economy can be found, in practice, the centres focus primarily on the beneficial impact on the environment of the university (Kijeńska-Dąbrowska & Lipiec, 2012). There are exceptions – the features of the economic development model can be found at the Center for Technology Transfer and Entrepreneurship at the Warsaw University of Technology. This is evidenced by it being based in the Centre for Innovation and Technology Transfer the activities of which are to assist not only scientists affiliated with the University, but any coming from Mazovia. The stated primary goal is to create a regional ecosystem in which joint projects are carried out, and their results are transferred to the economy. In turn, the Centre of Technology Transfer of the Wrocław Technical University is funding its activities itself. This approach, close to the revenue-based model, is, however, the least compatible with the characteristics of Polish entities. In Poland, the most important sources of TTC funding are grants and projects (on average 47% of the budget) and funding from the parent university (45%). Revenue from their own activities accounts for only 8% of the budget, but most of the Polish centres do not have any revenue from this source (Bąkowski, 2015).

Taking into account the considered components of business models, we can assume that TTCs in Poland are a homogeneous group of entities, largely dependent on higher education institutions and their funding.

TTC work integration model

Great importance in the handling of commercialisation processes is attributed to qualified staff. Their efficient cooperation with the creators of inventions determines the productivity of technology transfer centres (Weckowska, 2015). Studies have shown that a more important factor than the size are the qualifications of the team of workers (Campbell, 2007). The efficiency of services within the TTCs requires expertise in the area of science and business (Landry et al., 2013). Scientific expertise is necessary in contact with scientists. On the other hand, knowledge of business processes is useful in establishing a partnership with entrepreneurs and investors (Axanova, 2012; Baglieri et al., 2015; O'Kane, Mangematin, Geoghegan, & Fitzgerald, 2015). What is more, different skills should define the employees recognizing the possibility of commercialisation (knowledge of technology, knowledge of the scientific field), employees evaluating the technical aspect of inventions (testing, prototyping) and those taking responsibility for the final phase of commercialisation (searching for funding, negotiating contracts, verifying the customer market). Answering the demand for different skills, some services are outsourced (e.g. legal advice) or diversification of employment at different stages of operations takes place (Campbell, 2007; Landry et al., 2013).

Axanova (2012) identifies three models of work integration: horizontal, vertical and hybrid. The horizontal model takes into account team workflow division according to specific tasks. The team consists of specialists with diverse skills and performing different functions in the process of commercialisation. Such a solution is typically used by technology transfer units operating at larger universities. In practice, the vertical model of work integration is more common, where individual employees watch over the entire process of commercialising the invention assigned to them. The advantage of this solution is the possibility of strengthening the relationship between scientists and TTC experts. What is more, the TTC team gains experience at each stage of the commercialisation process (Wheaton, 2006). However, at the outset, its members are required to have extensive knowledge. The vertical division of workflow is successfully used by Cambridge Enterprise Ltd. The centre employs the so-called enterprise champions – scientists who are also entrepreneurs and agents of the commercialization of knowledge.

Foreign experience shows that the model of work integration of a team involved in technology transfer from universities to the economy usually takes the form of the hybrid model, which – regardless of the vertical or horizontal work integration – also takes into account the field of specialization (Axanova, 2012). An example of such an approach is the activity of the OTL Stanford and Israeli TRDF. The California university pays special attention to the adequate technical knowledge of the field and skills in marketing and social contacts of the person responsible for the commercialisation of specific invention. The Technion Institute of Haifa employs innovation brokers who are specialists in crucial research domains. The segregation of duties by technology field is also used in the Swiss ETH, in which commercialisation is dealt with by researchers from such fields as chemistry, biochemistry, physiology, electrical engineering and biology who at the same time have experience of working in R&D centres of global companies.

In Poland, the vertical model of work integration is used by the Centre for Technology Transfer CITTRU at the Jagiellonian University. It employs six innovation brokers, responsible for serving academic staff of the university. Experts at CITTRU take care of managing the intellectual property and the commercialisation of research results, as well as they aim to improve university cooperation with business and support scientist in research commissioned by private contractors. The Technical University Centre for Technology Transfer University of Lodz Sp. z o. o. [Ltd.] employs specialists with skills in many areas, enabling comprehensive support of the path to commercialization. Their work focuses primarily on supporting the licensing and the sale of the rights to scientific results. Another model of work integration was implemented by the centre at the AGH University of Science and Technology. The horizontal model stems from the structure of the unit which consists of three independent divisions: technology transfer, collaboration with the economy and the protection of intellectual property. A similar structure has been applied by the Innovation and Technology Transfer Centre (CITT) at the Silesian University of Technology.

From the point of view of the efficient operation of the centres in Poland, the matter of stabilizing the number of staff and developing their skills seems to be more important than introducing a specific work integration model. Domestic TTCs face insufficient human potential (Niedzielski & Łobacz, 2012), what is manifested by a relatively low employment and the lack of sufficient competences (Matusiak & Guliński, 2010). One of the reasons for this is the method of financing the activities of the units, that is, its dependence on implementing external projects. This results in the fact that people are employed to handle projects and not to act strictly for commercialization. In addition, financial conditions of Polish TTCs often do not allow the acquisition of qualified staff with commercial experience; this factor negatively affects the results of commercialisation.

Mechanisms of cooperation with the science sector

The organizational culture of a university and its designed priorities determine the perception of a scientist and his work in the context of knowledge and technology transfer (O'Shea, Allen, Chevalier, & Roche, 2005). There are two approaches. In the approach called traditional in this article, a scientist conducts research, and TTC staff examines whether the results of his work have any commercialisation potential. It is the TTC to be responsible for the final launch of the invention onto the market. The second view, which can be defined as a novel one, tells us to perceive a scientist not only as a researcher, but also, to a certain extent, an entrepreneur who commercialises inventions, for example by setting up a spin-off company. The perception of the role of a scientist in knowledge transfer as a traditional or a novel one depends on many factors: the historical background, the university's strategy, the type of research etc.

Active participation of inventors in the whole process of commercialisation is considered to be a prerequisite for success in the MIT TLO; a study conducted by the Massachusetts Institute of Technology showed that 70% of licensees were already known to inventors. At the ETH Zurich, the basic form of technology transfer is licensing intellectual property and encouraging employees to create spin-offs licensed by the higher education institution. A researcher or a team of researchers who want to develop a product and undertake economic activity have priority to obtain a license; such a decision is very often taken. Encouraging scientists to commercialise is also at the core of the OTL Stanford success – the model introduced in the 1980s, taking into account, inter alia, an incentive system for commercializing researchers, proved to be so effective that in the first year it generated income ten times greater than in the preceding 15 years.

A different model defines scientific units in Israel. The most significant TTCs: Yissum, Yeda and TRDF, operate according to a similar scheme which starts with the discovery of an idea and proposing an action plan to its developers. The rule of professionalization applies – scientists are expected to mainly conduct research, and not to be entrepreneurs. The process of commercialisation should be left to professionals who regularly participate in academic seminars and maintain a network of contacts in laboratories. Maximum one day a week should be spent by academics on business consultancy.

There are various forms of the manner of encouraging scientists to participate in the process of technology transfer. At the ETH Transfer, the obligation to notify in writing about each invention, any result of research and development work which has the characteristics of an innovation as well as about any computer program is imposed on scientists. The expectation that developers will notify the technology transfer centre of the inventive activities being undertaken should be considered typical of countries with legislation based on university inventions' property, but there are also less formal solutions. For example, the Oxford University emphasizes freedom of choice of the researchers and the fact that they can carry out any kind of research without trying to commercialise them. The Oxford University Innovation offers assistance in the commercialisation of knowledge, but directs it only to those willing, without exerting pressure on researchers[8]. The prevailing view is that accelerating research and the creation of high-tech inventions are more likely when working in large, interdisciplinary teams, therefore Oxford University Innovation primarily helps scientists to establish contacts with representatives of different sectors and domains.

According to Baglieri, Baldi and Tucci (2015), one of the dimensions of the academic TTCs' activity is the more or less selective directing of services to scientists. In the first case, the centre focuses on scientists with the greatest achievements, also in terms of collaboration with business (the so-called principal investigators: Casati & Genet, 2014; Mangematin, O'Reilly & Cunningham, 2012; Boehm & Hogan, 2014). The less selective directing means including all researchers in the activities. This mechanism is used, for

[8] The British university motivates scientists to entrepreneurship with attractive profit-sharing rules. The researchers share of revenues from licensing depends on their amounts involved. In the case of the lowest revenue, the percentage rises to 60%, which leads to engaging in commercialisation regardless of the expected global revenue from the project. In the case of creating a spin-off company, the creators receive shares of a similar amount to the university, and their percentage of the revenues from consulting services can reach 85%.

example, by the Zurich Technical University which wants to see involvement in the transfer of knowledge as the essence of academics' activities – apart from research. A different strategy was adopted by the Oxford University in the belief that commercialisation should relate only to some scientists, and the best of them will find their way to the TTCs. Both of these described practices are, however, far from the tactics described by Axanova (2012), which consists of protecting all inventions produced in the research institution with patents (protect-it-all). Such an approach is characteristic of the university whose primary objective is to provide services for their own academic staff. It brings inventors' satisfaction, but is associated with the risk of spending money on patents that are unlikely to generate income. Both the ETH, and Oxford use the business-like model version, making decisions about protection taking into account the type of technology risk, market potential of the product, etc.

Polish regulations assume the obligation of universities to approve regulations setting out the rules and procedures for commercialisation of the results of research and development (Krzewiński et al., 2014). The regulations are full of provisions devoted to TTC tasks such as consultancy and promotion of entrepreneurship. They specify the responsibilities of researchers (the Gdansk University of Technology: „a developer of an inventive project, an innovative solution, a computer program or a database is required to immediately report the fact of the creation as a result of intellectual work" and „to cooperate in the process of commercialisation": the Gdansk University of Technology, 2015, pp. 6–7) and the rules for the distribution of profits from the commercialisation (the University of Warmia and Mazury in Olsztyn: 50% of the profit shall be the creator's share, 20% belong to the unit employing him or her and to the university, and 10% is received by the Centre for Innovation and Technology Transfer: UWM, 2011). Too rarely, however, activities of technology transfer centres aimed at the scientific community go beyond the traditional advice and training. The exception here is the BioTech International Institute of Molecular and Cell Biology in Warsaw which finances scholarships for doctoral students carrying out application research projects and finances internships for researchers in innovative companies.

Mechanisms of cooperation with the commercial sector

Technology transfer centres are usually perceived as intermediaries between researchers and companies (cf. Baglieri et al., 2015; O'Kane et al., 2015; Siegel & Wright, 2015). Thus, they face the need for creating value for various groups of stakeholders (Landry et al., 2013), with different goals and needs, and thus divergent expectations of TTCs.

Shaping multiple identities and balancing the academic, commercial and social dimensions of the image created by the TTC is one way to manage conflicts arising from the existence of groups of stakeholders with different expectations and organization cultures. Such an action does not lack drawbacks, because it can cause blurring of the identity and image of the TTC. Therefore, the key factor for success is implementing a decentralized management style that preserves the sensitivity of relations with stakeholders and allows to flexibly respond to their needs (Debackere & Veugelers, 2005).

TTCs capable of understanding the motives of all parties are successful within technology transfer (Ankrah, Burgess, Grimshaw, & Shaw, 2013). This points to the practice of relationship-oriented commercialisation (Weckowska, 2015). The importance of building extensive networks of contacts as well as close and long-term relationships within networks which should be managed at every stage of technology transfer, is growing. This approach undermines the legitimacy of attributing considerable importance to the transactional aspects of research commercialisation (cf. Perkmann & Walsh, 2007; Alexander & Martin, 2013).

Transfer centres take at least a few decisions regarding establishing partnerships with the commercial sector, namely: with whom, at what stage and what tools will be used to establish contact. A TTC conducting the practice of transaction-oriented commercialisation perceives entities from the private sector as potential buyers. They take up one-way marketing activities, oriented at the result of negotiating agreements aimed at sales or licensing. In seeking commercial partners they rely on the contacts of scientists and assume the „first come first served" approach.

More effective in establishing lasting relationships are those centres in which relationship-oriented commercialization dominates. Contacts with potential investors and licensees must be established at an early stage of the research, for there to be an opportunity to engage in joint projects. The activities are aimed at building partnerships in order to maximize the opportunities for research cooperation; therefore negotiations are conducted with many entities, not only from the scientific circle. An example is the OTL Stanford, focused on building strong and long term relationships with the commercial sector. When promoting new inventions, employees interact primarily with companies with which they have already worked. Similarly, Innovation Services at the University of Oulu is trying to gather extensive knowledge about possible industrial partners and the specifics of their activities. To learn business processes, TTC specialists pay visits to the premises of companies and discuss the potential benefits of technology transfer together with their representatives. In Israel, centres organize mixed seminars, during which the possibilities and expectations of business representatives are probed. These measures guide scientific research into the areas of practical applications.

A wide range of services in supporting business partners in establishing contacts with university research teams is offered by the ETH Transfer. Having received a demand from an enterprise, the centre provides an analysis of the competence of the experts at the University of Technology, organises the exchange of personnel and arranges the conduct of joint projects co-financed by the government. Study visits to the ETH laboratories and workshops with companies are also organized; their goal is to develop proposals for innovative fields of cooperation.

A unique and extremely effective communication tool is still to be found at the Oxford Innovation Society (OIS), managed by Oxford University Innovation. The OIS brings together scientists, investors, university spin-out companies, specialists in technology transfer, local entrepreneurs and innovative international corporations. The forum members regularly receive a newsletter and information about patent applications managed by the Oxford University Innovation. In addition, they are invited to tailor-made seminars and meetings. An interesting form of this are dinners organized three times a year – with lectures and a reception, when the participants make contacts, exchange experiences, get to know what the scientists are offering and what are the needs of the commercial sector.

Compared with their Western counterparts, TTCs in Poland are relatively inexperienced in the process of knowledge commercialisation. In order to change this situation actions aimed at promoting the development of relations between the academic sector and industry are required. The activities of domestic centres are directed out to local stakeholders, mainly scientists themselves and includes entrepreneurs to a rather small extent. Krakow CITTRU is an example of conducting an intensive and wide-ranging communication with companies from Poland and other countries in Europe, Asia and the USA. In 2015, the centre supported the work of brokers who held direct meetings with business representatives, by running the sciencemarket.pl website. The website presented the products of university research, including inventions designed for implementation, to the commercial sector (the Jagiellonian University, 2015).

Taking up initiatives in line with international trends is also sought by the Wroclaw Centre of Technology Transfer of the Wroclaw Technical University. As a member of the Enterprise Europe Network appointed by the European Commission, the TTC actively supports the development of entrepreneurship in western Poland. As part of this activity, it offers small and medium-sized enterprises free and comprehensive information, consultancy and training services in the field of technology transfer and support activities in the international market. It also organizes meetings, seminars and thematic conferences, as well as publishes a bulletin „High-Tech" and regularly collaborates with the media (Firlej & Kamińska, 2012).

Conclusions. Towards international standards

In order to develop the most effective technology transfer practices, adapted to the dynamically changing academic and business sectors, technology transfer centres continue to evolve and develop increasingly complex strategies. Experience of prestigious TTCs shows that it is difficult to identify the single most effective business model for commercialisation processes. This depends on the size of the parent unit and its administrative structures, method of financing, its formulated mission and the underlying commercialisation mechanisms.

Specific solutions used by selected TTCs can be implemented by other centres, if they are at a similar stage of development (Pazos et al., 2012). It should not be expected that the transfer of foreign good practice onto the domestic market will be complete. In Poland, the tradition of collaboration between science and industry is much shorter, and the cooperation of universities and enterprises has not yet reached maturity. Domestic TTCs undergoing the process of development and the evolution of their business models, cannot, however, underestimate the mechanisms developed in foreign centres and the changes ongoing in them. A critical look at the activities of Polish TTCs seems to be an important element of the discussion about the efficient transformation of traditional universities into entrepreneurial universities.

In Poland, the TTCs operating within supervisory research units are a sizeable and homogenous group, when considering the models of operations, which manifest features of the service model. The popularity of this model is the result of Polish TTCs taking up safe positions at universities, where their position and funding do not depend on their performance indicators.

Inclusion of the revenue model in the mission of Polish TTCs and practical implementation of its characteristic elements could result in more centres than before achieving commercialization effects, rather than only conducting advisory and training activities.

The stimulation of technology transfer processes is not possible without increasing the intensity of contacts with the commercial sector. Currently, the structure of the recipients of Polish TTC services is dominated by scientists and other university employees, while only 17% are owners and managers of small and medium-sized companies (Bąkowski, 2015). Such an inside-out business model (Landry et al., 2013) is rather a commitment to solving the problems of the research community (e.g. legal issues, access to capital) than directing services to entrepreneurs. Perhaps this model makes transfer centres more „bottlenecks" than „facilitators" in the spread of innovation (Litan, Mitchell, & Reedy, 2008, pp. 31–57). For this reason, it is necessary to develop business models oriented to the outside, which will enable the establishment of strong ties with enterprises, identification of their needs and the preparation of tailor-made solutions. This approach should be a counterbalance to the focus on scientists as a key resource in developing products for industry. Becoming a full-fledged entrepreneurial university that stands out in conducting communication between the academia, business and social sectors, requires implementation of relationship-oriented commercialisation practices by the TTC.

At the best universities (e.g. in Oxford), researchers themselves acknowledge business success as a component of academic prestige. In Poland, cooperation with the commercial sector usually slows down the development of research careers. Perceiving commercialisation as a necessary component of the development of entrepreneurship and innovation should be reflected both in the established policy of promotional and incentive programmes for departments and individual academics and students. If publishing research results in international journals with a high impact factor is still by far the more important for the career development of researchers, scientist are reluctant to devote time and effort to commercialisation.

The transformation of technology transfer from peripheral activities into central activities and the greater involvement of researchers in the commercialisation of their inventions also require the institutions employing them to secure funds to cover the costs of patenting and negotiating licensing agreements, as well as providing support in the form of professional TTC staff. Undoubtedly, the change in the structure of employment that has occurred in Poland in the last ten years is a positive development. There has been an increase in the number of full-time professional staff, and the number of those operating as advisers, consultants or lecturers on the basis of commission contracts has decreased (Bąkowski, 2015). Transfer centres, however, still point to the need for staff to acquire new competences so that their experts can independently assess potential commercialisation scenarios and prepare appropriate strategies for technology sales. In practice, the number of TTC employees is usually small, and their work is mainly focused on the protection of intellectual property rights for higher education institutions and do not include the knowledge of issues in the area of entrepreneurship. These deficiencies are compensated by delegating certain tasks to outside consultancy (Bąkowski, 2015). Such actions are not conducive to building lasting relationships with stakeholders, which is why staff training for business skills and attracting employees with experience in the commercial sector seem necessary.

Apart from that, the weakness of technology transfer in Poland is also associated with the applicable rules of the assessment of scientific units'. It is not about „fetishizing" commercialisation activities, as then patents are treated – as in the current parametric assessment – as a source of points to win, and not as factual assets of the commercial (Niedzielski & Łobacz, 2012). Most often, it is said that however obtaining patents is rewarded in the Polish system, it does not contribute to increasing deployments at universities. The patent process is laborious and expensive, and in the case of innovation, time is what matters. Knowledge transfer can be included in the assessment process in a more subtle manner – for example, the British system of Research Excellence Framework includes the impact on the social and economic life of the country within the criteria of the scientific excellence of universities (20% of the final assessment).

Even the greatest efforts of TTCs to perform their assigned tasks will not contribute to achieving spectacular results if no favourable conditions are met, such as a high enough university spending on R&D, the scientific excellence of the conducted research, which results in vital discoveries, the maturity of the TTC resulting from a sufficiently long period of activities and the TTC's favourable location. The examples cited in the article show that, despite the fact that the general condition of domestic TTCs is not fully satisfactory, there are, however, centres that successfully follow the trends set up by the foreign TTCs which have mastered their skills in the field of technology transfer and knowledge commercialisation.

References

Abrams I., Leung, G., & Stevens A. J. (2009). *How are U.S. technology transfer offices tasked and motivated – Is it all about the money?*. Research Management Review, Vol. 17, No. 1, 1–34.

Alexander A. T., & Martin D. P. (2013). *Intermediaries for open innovation: A competence-based comparison of knowledge transfer offices practices*. Technological Forecasting Social Change, Vol. 80, 38–49.

Ankrah S. N., Burgess T. F., Grimshaw P., & Shaw, N. E. (2013). *Asking both university and industry actors about their engagement in knowledge transfer: What single-group studies of motives omit*. Technovation, Vol. 33, 50–65.

Axanova L. (2012). *US Academic Technology Transfer Models: Traditional, Experimental and Hypothetical*. Les Nouvelles, No. 2, 125–137..

Baglieri D., Baldi F., & Tucci, C. (2015). *University technology transfer office business models: One size does not fit all*. Presented at DRUID Society Conference 2015.

Bąkowski A., & Mażewska M. (2015). *Ośrodki innowacji i przedsiębiorczości w Polsce. Raport 2014*. Poznań–Warszawa: SOOIiP.

Berbegal-Mirabent J., Ribeiro-Soriano D. E., & Sánchez-García J. L. (2015). *Can a magic recipe foster university spin-off creation*. Journal of Business Research, Vol. 68, 2272–2278.

Boehm, D. N., & Hogan, T. (2014). *A Jack of all trades': The role of PIs in the establishment and management of collaborative networks in scientific knowledge commercialisation*. The Journal of Technology Transfer, Vol. 39, 134–149.

Campbell A. F. (2007). *How to set up a technology transfer office: Experiences from Europe*. [In:] Krattiger A., Mahoney R. T., Nelsen L., Thomson J. A., Bennett A. B., Satyanarayana K., Graff G. D., Fernandez C., Kowalski S. P., I*ntellectual property management in health and agricultural innovation: A handbook of best practices* (pp. 559–566). Oxford – Davis: MIHR – PIPRA

Casati A., & Genet C. (2014). *Principal Investigators as Scientific Entrepreneurs*. The Journal of Technology Transfer, Vol. 39, No. 1, 11–32.

Carlsson B., & Fridh A.-Ch. (2003). *Technology transfer in United States universities: A survey and statistical analysis*. [In:] Metcalfe J.S., Cantner U. (ed.), *Change, transformation and development* (pp. 379–412). Berlin – Heidelberg: Springer-Verlag.

Conti A., & Gaule P. (2011). *Is the US outperforming Europe in university technology licensing? A new perspective on the European Paradox*. Research Policy, Vol. 40, No. 1, 123–135.

Debackere K., & Veugelers R. (2005). *The role of academic technology transfer organizations in improving industry science links*. Research Policy, Vol. 34, 321–342.

Demil B., & Lecocq X. (2010). *Business model evolution: In search of dynamic consistency*, Long Range Planning, Vol. 43, 227.

Etzkowitz H. (2003). *Innovation in innovation: The triple helix of university – industry – government relations*. Social Science Information, Vol. 42, 293–337.

Etzkowitz H. (2014). *The second academic revolution: The rise of the entrepreneurial university and impetuses to firm foundation*, [In:] Allen T. J., O'Shea R., *Building technology transfer within research universities: An entrepreneurial approach*. Cambridge: Cambridge University Press.

Etzkowitz H., & Leydesdorff L. (1995). *The triple helix. University – industry – government relations: A laboratory for knowledge-based economic development*. EASST Review, Vol. 14.

Feldy M., Knapińska A., Ostaszewski, M., Rószkiewicz, M.M., Tomczyńska, A., & Warzybok, B. (2014), *Naukowiec w relacjach z biznesem. Uwarunkowania transferu wiedzy w Polsce*. Warszawa: OPI PIB.

Firlej J., & Kamińska M. (2012). *Wrocławskie Centrum Transferu Technologii przy Politechnice Wrocławskiej – studium przypadku* [manuscript]. Poznań: CoWinners sp. z o.o dla OPI PIB.

Gdansk University of Technology (2015). Senate resolution no. 258/XXIII/2015 of 18 March 2015 on changes to the rules of management and commercialisation of intellectual property.

Hockaday T. (2009). *What is the best structure for an university technology transfer office?* Retrieved April 25, 2016 from http://www.sciencebusiness.net/news/69022/What-is-the-best-structure-for-a-universitys-technology-transfer-office

Kijeńska-Dąbrowska I., & Lipiec K. (ed.), (2012). *Rola akademickich ośrodków innowacji w transferze technologii*. Warszawa: OPI PIB.

Krzewiński Z., Budasz K., Krzewińska D., Gabriel P., & Sypniewska M. (2014). *Organizacja komercjalizacji wyników badań*. Warszawa: OPI PIB.

Krzewiński Z., & Miądowicz M. (2012). *Office of Technology Licensing Stanford University – studium przypadku* [manuscript]. Poznań: CoWinners sp. z o.o dla OPI PIB.

Krzewiński Z., & Pucher J. (2012). *ETH Transfer przy Politechnice Federalnej w Zurychu – studium przypadku* [manuscript]. Poznań: CoWinners sp. z o.o dla OPI PIB.

Krzewiński Z., & Utrecht R. (2012). *ISIS Innovation Ltd. – studium przypadku* [manuscript]. Poznań: CoWinners sp. z o.o dla OPI PIB.

Kwiek M. (2015). *Uniwersytet w dobie przemian: Instytucje i kadra akademicka w warunkach rosnącej konkurencji*. Warszawa: PWN.

Landry R., Amara N., Cloutier J.-S., & Halilem N. (2013). *Technology transfer organizations: Services and business models*. Technovation, Vol. 33, No. 12, 431–449.

Litan R. E., Mitchell L., & Reedy E. J. (2008). *Commercializing university innovations: Alternative approaches.* [In:] Jaffe A. B., Stern J. L., *Innovation policy and the economy*. Chicago: University of Chicago Press.

Matusiak K. B., & Guliński J. (ed.) (2010). *Rekomendacje zmian w polskim systemie transferu technologii i komercjalizacji wiedzy*. Warszawa: PARP.

Mangematin V., O'Reilly P., & Cunningham J. (2012). *PIs as boundary spanners, science and market shapers*. The Journal of Technology Transfer, Vol. 39, No. 1, 1–10.

Marszalec J. (2012). *Studia przypadków instytucjonalnego wsparcia transferu wiedzy i technologii z państwowych jednostek badawczych do biznesu: Research and Innovation Services University of Oulu, VTT Ventures Ltd., Cambridge Enterprose Ltd*. [manuscript]. Warszawa: Innovatech Consulting dla OPI PIB.

Mowery D., Nelson R., Sampat B., & Ziedonis A. (2015). *Ivory tower and industrial innovation: University-industry technology transfer before and after the Bayh-Dole Act*. Stanford: Stanford University Press.

Niedzielski P., & Łobacz K. (2012). *Diagnoza i analiza problemów komercjalizacji wiedzy i transferu technologii na uczelni wyższej pod kątem barier natury organizacyjnej*. Szczecin.

O'Kane C., Mangematin V., Geoghegan W., & Fitzgerald C. (2015). *University technology transfer offices: The search for identity to build legitimacy*. Research Policy, Vol. 44, 421–437.

O'Shea R. P., Allen T. J., Chevalier A., & Roche F. (2005). *Entrepreneurial orientation, technology transfer and spin-off performance of U.S. universities*. Research Policy, Vol. 34, No. 7, 994–1009.

Pazos D. R., López S. F., González L. O., & Sandiás A. R. (2012). *A resource-based view of university spin-off activity: New evidence from the Spanish case*. Revista Europea de Dirección y Economía de la Empresa, Vol. 21, 255–265.

Perkmann M., & Walsh K. (2007). *University-industry relationships and open innovation: Towards a research agenda*. International Journal of Management Reviews, Vol. 9, No. 4, 259–280.

Rabczenko A. (2012). *Transfer technologii w Izraelu. Rola Ośrodków Transferu Technologii w sukcesie gospodarczym – studium przypadku dla Ośrodka Przetwarzania Informacji – Instytutu Badawczego* [manuscript].

Siegel D. S., & Wright M. (2015). *University technology transfer offices, licensing, and start-ups*. [In:] Link A. N., Siegel D. S., & Wright M. (ed.). *The Chicago handbook of university technology transfer and academic entrepreneurship* (pp. 1–40). Chicago – London: The University of Chicago Press.

Sharer M., & Faley T. L. (2008). *The strategic management of the technology transfer function – Aligning goals with strategies, objectives and tactics*. Les Nouvelles, Vol. 43, No. 3, 170–179.

Thursby J. G., & Kemp S. (2002). *Growth and productive efficiency of university intellectual property licensing*. Research Policy, Vol. 31, 109–124.

Thursby J. G., & Thursby M. C. (2002). *Who is selling the ivory tower? Sources of growth in university licensing*. Management Science, Vol. 48, 90–104.

Tomczyńska A., Knapińska A., & Rószkiewicz M.M. (2014). *Stosowanie nowoczesnych mechanizmów transferu wiedzy. [w:] Naukowiec w relacjach z biznesem. Uwarunkowania transferu wiedzy w Polsce*. (pp. 105–130). Warszawa: OPI PIB.

Uniwersytet Jagielloński (2015). *Raport CTT CITTRU 2015*. Kraków: UJ.

Uniwersytet Warmińsko-Mazurski w Olsztynie. (2011). *Przewodnik dotyczący zarządzania własnością intelektualną i ochrony prawnej dóbr niematerialnych powstałych w Uniwersytecie Warmińsko-Mazurskim w Olsztynie*. Olsztyn: UWM.

The Act of 27 July 2005, Law on Higher Education, as amended: Journal of Laws No. 164, item 1365.

Weckowska D. M. (2015). *Learning in university technology transfer offices: Transactions-focused and relations-focused approaches to commercialization of academic research*. Technovation, Vol. 41–42, 62–74.

Weeks P. (2006). *Strategies for managing internal and external constituencies*. AUTM Technology Transfer Practice Manual, 3rd Edition, 2(1).

Wheaton B. (2006). *Managing a medium-sized technology transfer office*. AUTM Technology Transfer Practice Manual, 3rd Edition, 2(1).

Wirtz B. W., Pistoia A., Ullrich S., & Göttel, V. (2016). *Business models: Origin, development and future research perspectives.* Long Range Planning, Vol. 49, No. 1, 36–54.

Zuniga P. (2011). *The state of patenting at research institutions in developing countries: Policy approaches and practices*, No. 4. Geneva: WIPO.

Central European Review of Economics & Finance
Vol. 21, No. 5 (2017), pp. 59–74.

Magdalena Zwierzchowska[1]

BENEFITS RESULTING FROM THE IMPLEMENTATION OF THE CORPORATE SOCIAL RESPONSIBILITY

The paper presents benefits resulting from the implementation of the Corporate Social Responsibility by observing guidelines included in ISO 26000:2010 standard according to the studies carried out by the Association Responsible Business Forum and KPMG an audit and advisory company. We presented the methodology of the studies undertaken by the organization mentioned above which analyzed the condition of the CSR in Poland. The same studies are carried out every year and special reports are drawn up based on their results which are described in detail together with a commentary comparing the current state of affairs with the previous year. The results of these measurements allow to check whether the CSR idea becomes more popular and more frequently applied and whether it brings measurable benefits both to the companies and their surroundings.

JEL Classification Codes: **M14**, **D21**.

Keywords: Corporate Social Responsibility, ISO 26000, benefits, Responsible Business, Forum, KPMG.

Introduction

Dynamic changes observed these days, especially the ones taking place in the system area, have placed enterprises in the entirely new surroundings and thus they were forced to conduct their business activity in the light of constantly growing competition. Today, both the already established compa-

[1] M.A. Ph.D. student, K. Pulaski University of Technology and Humanities in Radom, Poland, Faculty of Economic and Legal Sciences.

nies and those entering in the market struggle to gain profit and reduce costs in particular in the view of the ongoing and unlimited social and economic development. Constantly developing technology contributed not only to the improvement of the conditions of living but it has also influenced the worsening of the condition of the natural environment. This situation demonstrates that the decisions made by each enterprise operating in the market are shaping its surroundings composed of the environment and its society.

In connection with the above, in 2010 the International Organization for Standardization worked out ISO 26000 standard which covers the guidelines related to the running of a socially responsible corporation. In other words, it shows how significant are the decisions made in respect of the nature of company's activity and how these decisions influence not only the economic aspect of this particular enterprise but above all its surroundings. Nowadays there are several definitions characterising the issue of the Corporate Social Responsibility (CSR), however the most frequently applied explanation of the term CSR is included in the ISO 26000 standard: „… *it is an obligation of an organization to include social and environmental aspects in the decision making process and to take the responsibility for the influence of the decisions made and of the activities taken on the society and the environment*" (ISO 26000:2010). This standard is not obligatory and its introduction is not certified. The companies respecting the rules of the ISO 26000 standard should bear in mind the social, economic and legal areas and the most important thing is to respect human rights and maintain the appropriate labour relations. The aspect of the management of human resources is also vital. The employees constitute the core of a company and they work for its success in the market. The appropriate functioning of an organization depends on their engagement, knowledge, qualifications and values (CIOP 2017, Gableta 2006, ISO 2600:2010, PKN 2013).

CSR indicates values that should be respected by an organization:

1. Organizational order.
2. Human rights.
3. Labour relations.
4. Natural environment protection.
5. Relations with consumers.
6. Social engagement (Zuzek 2012).

Introducing ISO 26000 to the organization may have an impact on among others:

– Competition superiority and reputation;
– Ability to recruit and keep employees, customers, users;

- Sustention of morality, engagement and efficiency of employees;
- Evaluation made by investors, donors, sponsors, financial markets;
- Relations with entrepreneurs, governments, media, suppliers, contractors, customers and society in which the organization is operating (PKN 2013).

Corporate responsibility is an effective management strategy and thanks to the social dialogue held at the local level it, contributes to the increase of competitiveness of enterprises at the global level. It also shapes beneficial conditions for the balanced economic and social development. Positive effects of the corporate social responsibility exerted on the competitiveness in the enterprise are connected with the improvement of the quality of the products, stronger loyalty of the customers and most importantly greater satisfaction of the customers. Moreover, positive image of a company means a better position in the labour market, easier cooperation with business partners and national administration. On the other hand, thanks to the above, the company has an easier access to the public funds. Also higher motivation and loyalty of company's employees translates into greater competitiveness in the enterprise. All these elements build positive image of a company (Odpowiedzialna Firma 2017)

The purpose of this study is to present the essence of the Corporate Social Responsibility for the enterprises operating in the market and functioning according to the CSR concept and treating the CSR concept as the aspect determining a lasting success. In the article we analysed the benefits resulting from the implementation of the CSR on the basis of the studies carried out by the Responsible Business Forum and KPMG at the turn of the year 2014 and 2015 in the companies performing their mission based on one of the pillars of balanced development – the idea of the CSR.

Benefits of introducing CSR

Proceeding to the benefits that could be gained by a company by way of introducing CSR, we have to mention the areas of this concept in order to specify the criterion of the division of these benefits in the further part of this paper. The CSR concept is manifested in the economic, social and ecological spheres which are at the same time connected with the benefits being the consequence of the introduction of the CSR.

Economic area of introducing CSR rules covers:

1. Production stage including:
   - A decision made by the highest-level management on the production of goods and packaging posing no threat towards the consumers safety and natural environment;
   - The highest-level management declares a total compliance of its goods and services with the standards;
   - A company observes specified standards;
   - The highest-level management declares systematic and constant control over the influence exerted on the surroundings by the operation of a company;
2. Human resources management:
   - Application of the equal opportunities policy;
   - Implementation of programs and ethical codes;
   - Equal pay;
   - Provision of additional forms of health and social care;
   - Support of laid-off employees;
3. Stakeholders:
   - Fair competition;
   - Ethical behavior in transactions with clients;
   - Participation in charity, educational and quality-promoting initiatives;
   - Introduction of loyalty programs supporting the maintenance of contacts with stakeholders;
   - Thorough consideration of complaints.

Social area includes:

1. Cooperation with non-governmental organizations and local partners.
2. Social investments.
3. Combating bribery.
4. Observing human rights and customs of the local society.
5. Engaging company in various kinds of initiatives.

In the ecological area, a company:

1. Realizes programs supporting the management of the influence on the natural environment,
2. Engages in ecological campaigns which promote the idea of balanced development,
3. Contributes to the protection of natural resources and uses renewable sources of energy,
4. Limits contamination and degradation of the environment (ISO 26000:2010).

When implementing CSR, a company must take into account the financial, material, human and time outlays, thus it is very often wrongly perceived by an enterprise as an additional cost that contributes to the reduction of financial effectiveness. However CSR should be considered as an investment which is beneficial in the view of the areas described above, both in short and long periods of time. In addition, in order to analyse all benefits in a better way, it is worth becoming familiar with the tools applied by a company in the process of the management of social responsibility. The said tools include: social campaigns, ethical programs for employees, socially engaged marketing, corporate supervision, eco-labelling, socially responsible investments. By applying the above mentioned tools skilfully, an enterprise positively affects the functioning of its own business activity which is manifested through the benefits resulting from the CSR concept:

1. Increase of the interest of the investors – a particularly important group of external investors for a resiliently developing company are the creditors who grant loans for a different types of investments or innovations. That is why it is important that the management creates the image of its enterprise as a socially responsible enterprise by means of a reliable and transparent financial reporting and maintenance of partner relations with the surrounding.
2. Increase of the loyalty of the consumers and stakeholders – currently the awareness of the consumers is constantly growing when it comes to the social, ecological and economic areas. When they buy products, they pay attention not only to the price, but above all to the information concerning the producer, ecological aspects of purchased products and whether a given enterprise applies the rules of social responsibility. The above mentioned aspects create the image of a company and trust of the customers to a given brand.
3. Improvement of the relations with society and local authorities – a company by taking part in the everyday life of a local society, solving its problems or by taking up long-term social investment which bring measurable benefits develops uncontested relations with both the local society and self-government authorities.
4. Increasing competitiveness – nowadays with numerous companies functioning in the market that are operating in the same branches of industry, it is important for a given company to have an advantage guaranteeing competitive superiority. A CSR concept assures superiority not only in respect of the local and national consumers, but it also supports an enterprise in competing in the international or even global area.

5. Increasing the level of organizational culture – a company which applies the rules of CSR crates and implements the standards of conduct towards the stakeholders aiming to avoid wrong partnership. This influences the creation of the company's culture based on trust, transparency and responsibility for all those interested in the company's success and its functioning.
6. Shaping a positive image of a company in the eyes of the employees – by numerous social campaigns, ethical codes and caring for the environment, the image of a company is improved not only in the eyes of the society, but also in the eyes of the employees who are the core of each organization. Thanks to such activities taken up by a company, the employees grant greater approval for it and moreover they have stronger motivation to work in more effective way bearing in mind their personal contribution to the positive image of the company.
7. Recruiting and keeping the best employees – the image of a socially responsible company strengthens trust and attractiveness in the labour market, while this attracts new employees and keeps the best ones (MDG 2014).

CSR is a pattern of the running a company in respect of the surroundings thus the benefits should be considered in terms of the society:

1. Partner relations and alliance – cooperation based on trust, respect and common business, a company should reject stiffness and formality of contacts for the benefit of flexible, open and honest communication which simplifies the partnership with clients, suppliers and even competitors.
2. Educating the society – acting in line with CSR rules, a company together with its conduct, promotes these standards in the area of business, setting the example for trade partners and competitive companies. It is also the knowledge passed to the citizens on the sustained development, fair competition, caring for the environment and respect for human rights.
3. Solving problems of the natural environment protection – a company realizes ecological programs of the protection of the natural environment contributing to the improvement of the condition of the environment and reduction of contamination and waste of the natural resources as well as the rational use of raw materials. Moreover, the enterprises engage in various kinds of ecology-friendly campaigns and promote the idea of balanced development increasing at the same time the ecological awareness of the society.
4. Combating poverty – a chance for the poor part of the society for development, finding a job and keeping it.

5. Access to the information about the company – an enterprise which introduced CSR publishes its achievements in the form of a social report available for all stakeholders, carries out external audits and presents specific performance of a company in the area of ecology, society and economy.
6. Respect for the human rights – a company works out and introduces ethical codes, training and responsible human resources management bearing in mind the observance of human rights (CIOP 2017).

The employees of a company conducting a socially responsible business also benefit from the fact of their employment. It is commonly known that the core of the activity of a company is not attributed to the money but to the personnel which, when managed in appropriate way, works together for the success of the entire organization. Due to its engagement supported by appropriate motivation, it increases the effectiveness and profitability of a given business entity. Thus the activities of CSR cover the following benefits for the employees:

1. Increase of pay.
2. Employment safety.
3. Good internal communication.
4. Satisfaction of work and professional development.
5. Timeliness of pay.
6. Social benefits.
7. Bonus payments for effective and efficient work.
8. Less accidents at work (Gadomska-Lila 2012).

Introduction of CSR in the strategy of a business activity may bring numerous benefits connected either with savings (decrease of fees, reduction of the use of raw materials) or with the increase of employees satisfaction or safety of the functioning of an organization. The fact of the application of CSR may be also used for the marketing purposes (company promotion, increased competitiveness). However, these benefits may contribute to the improvement of the image of an organization but may also become the basis for the reduction of costs, innovative activities and positively influence the surroundings (caring for the natural environment). However it is worth mentioning that the CSR concept is inseparably connected with the stakeholders' concept. Due to the division of the stakeholders into the internal and external stakeholders, the benefits resulting from CSR have also been divided in two categories: internal and external ones. In the first case they are directly connected with the activities taken by an enterprise in order to satisfy the needs and expectations of the employees which may be visible in the sphere beyond an organization. Whereas the external benefits are connected with the external aspect (clients, business partners, social environment and public and national administration entities). The above described division is presented in the table 1.

Table 1. Internal and external benefits

Internal benefits	External benefits
• Increase of remuneration and timeliness • Reduction of the number of accidents what results in greater safety at work • Stability of employment and better professional perspectives • Increase of the satisfaction of work • Social benefits • Increase of motivation, satisfaction and engagement of employees • Increase of the identification of the employees with an organization, better perception of an organization • Increase of innovativeness • Developed organizational culture	• Positive image of a company and improvement of reliability • Effective functioning in the society and cooperation • Increase of the loyalty of the hitherto clients and the trust of the new ones • Increased interest of potential investors • Increased competitiveness

Source: Sznajder M. (2013).

While analysing the above presented benefits, it should be stated that both the internal and external benefits interact with each other. An enterprise cannot treat the internal and external environment separately, thus all the activities taken in the internal surroundings have the consequences among external stakeholders and vice versa. Therefore the benefits refer to the cooperation with the parties interested in the functioning of a company. The table 2 presents in detail the benefits of every stakeholder.

A separate type of benefits referring to the corporate social responsibility results from the nature of their acquisition. Thus we may distinguish financial benefits i.e. those that may be expressed in financial conversion and non-financial i.e. those which do not have their equivalent in money. While the first type may be additionally expressed in qualitative and quantitative way, the other one is considered merely in quantitative way. The matrix of correlations of the types of benefits and their indicators is presented in fig. 1.

Table 2. Benefit for every stakeholder

Stakeholders and owners	Employees	Dealers and suppliers
• Dividend, profit from investment • Increasing the value of a company • Creating innovations • Reputation of an enterprise • Financial benefits • Improvement of management • Minimisation of risk • Higher investment level • Increase of investors' interest • Improvement of organisational culture • Dominance over competition • Penetration of new markets	• Increase of remuneration • Realisation of other benefits • Creation of places of employment • Training and development • Enterprise's reputation • Greater employment safety • Stronger motivation • Greater loyalty • Higher efficiency • Possibility of self-development • Greater labour safety and smaller rotation	• Profit from sale of goods and services • Partnership and loyalty • Organizational development • Improvement of cooperation quality • Creation of innovations • Improvement of communication • Culture of business activities • Increase of company's financial credibility
Customers	**Competition**	**National and regional communities**
• Usefulness of purchased product or service • Image of a company or brand • Creation of innovations • Improvement of life quality • Improvement of society's welfare • Reduction of product's price • Product's safety and reliability • Improvement of product's quality • Professional activities	• Lack of losses resulting from unfair competition • Decrease of costs Decrease of costs resulting from the protection against unfair practices • Resourceful environment • Increase of the welfare of the society and at the same time increase of its purchase power • Fair competition • Legible and transparent competitive activities	• Income from taxes • Income from other forms of engaging an enterprise • Creation of workplaces • Development of the region • Improvement of the quality of life • Supporting transitions • Environment protection • Observation of legal norms • Reduction of contamination

Source: as in the table 1.

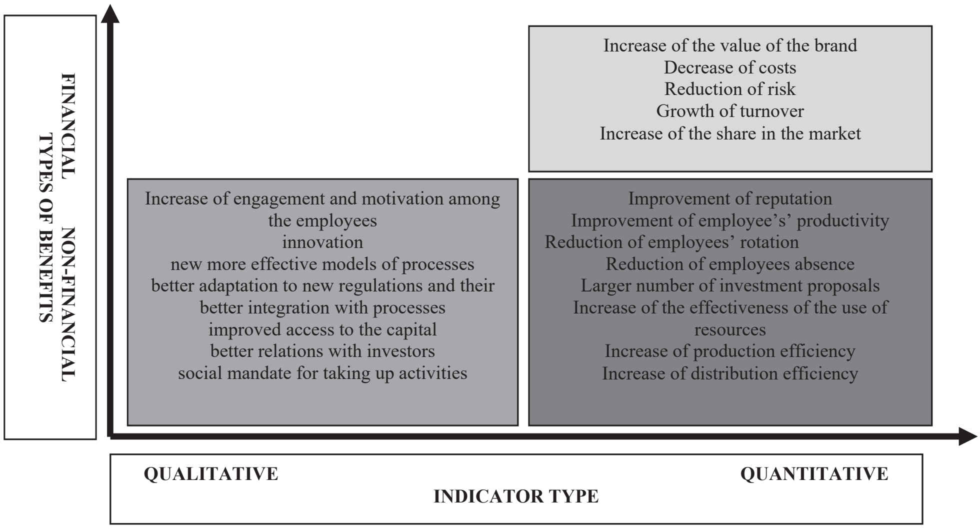

Figure 1. **Summary of financial and non-financial benefits**

Source: as in the table 1.

As demonstrated in the above matrix, non-financial benefits include:

1. Quantitative benefits which cover:
   - increase of engagement and motivation among the employees
   - innovation
   - new more effective models of processes
   - better adaptation to new regulations and their better integration with processes
   - improved access to the capital
   - better relations with investors
   - social mandate for taking up activities
2. Quantitative representation on the other hand:
   - reduction of employees' rotation and absence
   - increase of production efficiency
   - improvement of reputation
   - increase of the effectiveness of the use of resources
   - increase of distribution efficiency

Financial quantitative benefits include:

- increase of the value of the brand
- decrease of costs
- reduction of risk

– growth of turnover
– increase of the share in the market

The main goal of enterprises is above all the increase of own profits and reduction of costs. However, when analysing the above mentioned benefits, it may be noticed that a company benefits more outside the financial area than in the money zone. This confirms the fact that the introduction of the CSR concept does not mainly influence the increase of profits of the owners of the companies, but it concentrates on the creation of proper relations in a given enterprise with the surroundings and this brings non-financial profits which also affect financial liquidity of this unit.

Methodology of research

Research methodology was based on the study called „CSR managers" carried out in Poland by the Responsible Business Forum (FOB) at the turn of May and July 2015. The aim of the study was to evaluate whether the managers notice the influence of the introduction of CSR on the functioning of the business. Managers dealing with CSR area on everyday basis participated in the research and the object of the research was composed of the companies from small and medium sized enterprises sector and large enterprises employing at least 250 employees. The latter constituted 65% of the representatives of the study (all participants, n=133). The Responsible Business Forum is a think-and-do-tank type organization; it initiates and creates ventures for the Polish CSR. The mission of this organization is conducting business activity for the benefit of balanced development by way of supporting companies in the creation of responsible business, solving social problems; at the same time it becomes a platform where managers have the opportunity to exchange their experiences. The Responsible Business Forum Association analyses CSR by means of conducting periodical research in respect of the perception of the corporate social responsibility, introduction of this idea to the companies and cross-sectoral cooperation, elaborating its own reports and statements. Apart from that, it follows current analyses and reports of the studies carried out by other national and foreign institutions and describes them in its own publications (FOB 2015).

The second analysed material was a study carried out in September 2014 by KPMG company through a telephone interview. Large and medium (in respect of the profits and employent) sized companies participated in the study. The talks were mainly conducted with the managerial staff (13%)

and with the members of the management board (31%) (research sample, n = 101). KMPG is an international net of audit and advisory companies, which implements its own strategy in Poland in a socially responsibe way. With its activities, the company supports local communities, takes care of the natural environment, initiates entrepreneurship in Poland, engages in the concpets connected with culture and above all promotes CSR (KPMG 2014).

Results and discussion

The analysis of the measurements of the Responsible Business Forum demonstrates that according to the researched persons, the activities within the scope of CSR have contributed in the recent years to the solution of specified social problems. Sixty five percent of respondents marked the answer „definitely yes” and „rather yes”. Moreover, the managers indicated that the activities within the scope of environment protection constitute the most frequently solved social problem which does not demand large financial expenses and it brings measurable financial benefits and creates a positive image of a company.

Table 3. Impact of CSR on business functioning

Have business contributed to the solution of social problems in Poland in the recent years?		What social problems have solved responsible business in recent years? (the responses are ordered in decreasing order)
Definitely yes	11%	education
Rather yes	54%	social aid
Rather no	27%	environment protection
Definitely no	5%	promotion of healthy life style
Hard to say	3%	dialogue with the community
		charity,
		fight with poverty
		ethics in business
Sample: all respondents, n=133		Sample: person who claim that the business have contributed to the solution of social problems in Poland in the recent years, n=85

Source: own elaboration on the basis of: FOB (2015).

Whereas in the case of the question „if CSR influenced the improvement of the functioning of business?”, 81% of respondents observes this influence in the way the companies are formed, paying more attention to the matters of ecology and needs of the society.

Table 4. CSR and social problems

Did CSR influence the way of the functioning of business in Poland?		How did CSR influence the functioning of business in Poland?	
Definitely yes	16%	Change of the way of formation of companies	62%
Rather yes	65%	Paying attention to ecology	30%
Rather no	16%	Paying attention to the society	29%
Definitely no	1%	Increase of ethics in the workplace	6%
Hard to say	2%	Introduction of reporting on activities	6%
		Increase of cooperation with surroundings	6%
		Charity	4%
		Participation in social campaigns	4%
		Other	11%
Sample: all respondents, n=133		Sample: persons who claim that CSR influenced the way of the functioning of business, n=104	

Source: as in the table 3.

The results of the study demonstrate that the managers distinctly see the positive effects of applying the idea of CSR in their own companies. The figure below presents the results most frequently indicated by the managers.

Table 5. Benefits of CSR activities

Increase of the awareness level of the employees within the scope of ethics	74%
Increase of the engagement level of the employees	71%
Increase of brand recognition as a responsible / balanced brand	70%
Improvement of relations with local communities	69%
Improvement of reputation	62%
Increase of the level of trust of the customers	61%
Introduction of new, innovative solutions (e.g. products, services, processes)	47%
Reduction of costs generated by business activity	22%
Reduction of the number of accidents at work	22%
Decrease of the level of rotation of the employees	19%
Other	3%
Hard to say	2%
No benefits were obtained	0%

Source: as in the table 3.

The analysis of the telephone studies carried out by KPMG proved that according to the respondents, CSR has an actual influence on business activity.

However, the directors and other employees were deeply convinced about this fact (81% of indications), whereas the highest-level managers expressed such opinion slightly more seldom (73% of positive answers).

Table 6. The benefits of the CSR concept

77% of respondents claim that the running of a business activity according to the CSR concept positively influences the financial results of a company	
Improvement of the image in the market	52%
Increase of the acceptance of the surroundings	36%
Increase of the interest of contractors	30%
Increase of sale	26%
Increase of the interest of potential employees	24%
Reduction of costs	23%
Increase of the presence in mass media	8%
N=100 Respondents could indicate maximum two most important benefits	

Source: own elaboration on the basis of: KMPG (2014).

Carried out study proved that the respondents are aware of the benefits resulting from the CSR concept and their observations, despite different positions held, are quite similar. The most frequently indicated benefit is the increase of profits and over a majority of the respondents claims that CSR activities contributed to the improvement of company's image. The enterprises become more aware of the fact that thanks to the communication with the surrounding, its acceptance is growing. By way of using a various kinds of tools applied in conducting socially responsible business, the company becomes more attractive in the view of contractors, both the regular and potential ones. Thanks to the activities promoted by the idea of CSR, an organization may acquire additional investors and develop resiliently. Through the increase of investments, introduction of innovations and actions for the benefit of environment protection and solving social problems, a company benefits from the sale of its own products. CSR is also an opportunity to reduce costs, what is the second of the main goals of the functioning of a unit in the market.

When analysing the studies carried out in 2015 and 2014, we noticed that the perception of the CSR concept has changed. Namely, in 2014 the studies performed by KPMG proved that for the owners of the companies, the most important chance connected with the introduction of CSR was the increase of the profits of their business activity. This presents that they perceived the CSR concept as a strategy of increasing financial profit. On the other hand the studies of the Responsible Business Forum reveal even greater awareness of the managers of this idea. Since the main advantages relate to the employees, what means that the management is aware of the role played by the employees in the functioning of an organization. The above mentioned studies also displayed that the units extended the knowledge of the communication of CSR activities with the surrounding. The companies pay attention to the fact that it is not sufficient to engage in charity actions or establish foundations which bring a lot of goods, but there must be a cohesion between the activities of the company, its values and conduct of the employees towards these values and all other matters communicated outside the company. The companies perceive CSR as a management concept, just as it is, allowing for the development of the value of an enterprise not only for the improvement of reputation or recognition of the brand which at the same time leads to the increase of profits, but above all during the time of developing this value, we must remember about the company's surrounding, its stakeholders, what constitutes the chief domain of the CSR concept. By applying CSR rules, a company has a better position in respect of its competitors, the trust towards the contractors increases and the contractors trust this organization. Differences are also visible in the number of indicated benefits, as in 2015 more benefits were indicated. Thanks to the education within the scope of the activities, tools and the policies of responsible business concepts, the companies, societies and local authorities become more aware of the fact that CSR practices are nowadays indispensable for the proper communication between the organizations and their surroundings.

Summary

Summing up, social responsibility is the strategy of an enterprise taking into consideration social and environmental aspects transcending the obligations of the company. A proper implementation of CSR is distinguished by a long-term and reasoned running of a company in a socially responsible way. Moreover, it is worth mentioning that the implementation of CSR is connected not only with the obligations, but also with the benefits for a given company, material or ethical. The idea is important from the point of view of the society and ecologists, in particular today as the production is developing on a large scale and we encounter a numerous incidents connected with the contamination of the environment. CSR is also directly connected with the relations company-society and in particular with the employees. In today's market the value of human resources is invaluable, creativity and engagement constitute human's capital. Balanced business promoted by

CSR requires also legal standards, transcending these standards as well as imposing higher ethical standards. Nevertheless the entrepreneurs take up the challenge as they gain competitive superiority in the market in which the number of the companies is constantly increasing and customer's expectations are also rising. The achievement of the goals set by CSR is incredibly ambitious and making decision about its implementation is not enough; CSR must be meticulously implemented in every level of the company management system. In general we may summarize that nowadays not being socially responsible is not profitable for the companies as it is a standard which is commonly applicable and globally implemented.

References

CIOP. Barcik A., *Zarządzanie, społeczna odpowiedzialność a korzyści dla firmy*. Górnośląska Wyższa Szkoła Handlowa (access 22.05.2017).

Gableta M. (2006). *Zakres przedmiotowy gospodarowania potencjałem pracy*. [In:] Gabela M. (ed.). *Potencjał pracy przedsiębiorstwa*. Wrocław: Wyd. AE.

Gadomska-Lila K. (2012). *Społeczna odpowiedzialność biznesu wobec pracowników*. Management and Business Administration. Central Europe, 2 (115).

ISO 26000:2010. Guidance on social responsibility. Chapter 2.

KMPG (2014). *Społeczna odpowiedzialność biznesu: fakty a opinie* (access 22.05.2017).

Madrak-Grochowska M. (2010). *Społeczna odpowiedzialność biznesu – pomiędzy altruizmem a egoizmem przedsiębiorstw*. Ekonomia i Prawo. Tom VI.

Odpowiedzialna Firma, http://www.odpowiedzialnafirma.pl/o-csr/korzysci-z-csr (access 22.05.2017).

Sznajder M. (2013). *Korzyści z wdrożenia koncepcji społecznej odpowiedzialności biznesu (z uwzględnieniem koncepcji interesariuszy)*. Ekonomia i Zarządzanie, 2.

Zuzek D. K. (2012). *Społeczna odpowiedzialność biznesu a zrównoważony rozwój Przedsiębiorstw*. Zeszyty Naukowe MWSE w Tarnowie, 2 (12).

Wolak-Tuzimek A. (2016). *Benefits of introducing the concept of corporate social responsibility to enterprises*, Central European Review of Economics & Finance, Vol. 14, No. 4.

KPMG, https://www.home.kpmg.com/pl/pl/home.html (access 22.05.2017).

PKN. (2013). https://www.pkn.pl/informacje/2013/09/iso-26000 (access 22.05.2017).

FOB. (2015). Menadżerowie CSR (access 22.05.2017).

MDG. (2014). Społeczna odpowiedzialność biznesu (access 22.05.2017).